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MAY, 1918

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VOL. XVI

MAY, 1918

Number 5

THE DEL MONTE MEETING.

Reports of the annual meeting of the California State Medical Society will appear in the June issue of the JOURNAL. Suffice it to say that the meeting was one of the best from every standpoint that has yet been held. Many matters of vital importance came up for decision and the results will be far-reaching. Weather, location, and the spirit of the times combined to lend special distinction to its deliberations. The advantages of holding the sessions away from a large city and its distractions was again demonstrated. A splendid group of men were elected to the offices of the Society and their character promises a continuance of the excellent régime preceding them. The new officers are as follows:

C. Van Zwabenburg, Riverside, President; John H. Graves, San Francisco, First Vice-President; Ferdinand Stabel, Redding, Second Vice-President; Saxton Temple Pope, San Francisco, Secretary; Councilors—C. G. Kenyon, San Francisco, Chairman (6th District. Term expires 1919); T. C. Edwards, Salinas (3d District. Term expires 1921); E. N. Ewer, Oakland (7th District. Term expires 1920); A. W. Hoisholt, Napa (9th District. Term expires 1920); P. T. Phillips, Santa Cruz (5th District. Term expires 1920); E. C. Moore, Los Angeles (2d District. Term expires 1919); George H. Aiken, Fresno (4th District. Term expires 1921); Jas. H. Parkinson, Sacramento (8th District. Term expires 1919); René Bine, San Francisco (At Large. Term expires 1920); O. D. Hamlin, Oakland (At Large. Term expires 1919); H. A. L. Rytkogel, San Francisco (At Large. Term expires 1921); Geo. H. Kress, Los Angeles (At Large. Term expires 1920); J. C. Yates, San Diego (At Large. Term expires 1920); G. G. Moseley, Redlands (At Large. Term expires 1920); J. C. King, Banning (1st District. Term expires 1921).

CONTINUING NEED FOR SURGEONS IN MEDICAL RESERVE CORPS OF ARMY.

California with a medical population of 5687 has given 783 to the Army. This is 13.8 per cent., whereas our real quota should have been nearer 20 per cent. Not only is this number, then, somewhat below what it should have been, but it leaves the state rather low in the list of states in regard to this matter. California and Connecticut have each 13.8 per cent. of its medical population in the Army, and so are contestants for the twenty-ninth position. Nevada still ranks first with 154 medical men in the state and 37 in the Army, which is 24 per cent. of its medical population. Arizona is second, Montana third, and Pennsylvania fourth in the list of percentages.

The need of physicians for the M. O. R. C. is still urgent. The Surgeon-General's report for March 22d shows a total of 18,138 officers in the corps, 14,911 of whom are now on active duty. It is found on referring to previous reports that at the present time officers are being called to duty in greater number than they are being admitted to the corps, therefore, it is obvious that the corps will soon be depleted.

There will be added to the Army this year about three-quarters of a million men. These will require about 7500 surgeons. The Council of National Defense at the present time is asking California for at least 200 more surgeons, but looking this matter squarely in the face it would seem as if 400 or even 500 would be more appropriate. The California State Committee of the Council of National Defense has made a study of the doctors

available in the state, and has asked, and intends again to ask, the medical men in each county and in each city to have a meeting, canvass their own medical population, and decide which of those who have not yet gone should go first and which next, so that the burden—if it is a burden—may be made as light as possible and the service, which is paramount at the present time, may be rendered to the best advantage.

Who is not interested? Who cannot put a service flag with one or more stars in the window of his house or wear a service button showing that one or more members of his family has gone to fight for that freedom which we call Democracy? The importance of having the best medical and surgical ability of the country in the Army comes home to each one. The younger man—the man who is of the proper age—must remember that this great opportunity is his, and that the time to know it and take it is now. If he has not already made up his mind, or gone a step farther and made his arrangements, he should no longer delay taking both these steps, for it is far from likely that the foe is going to be beaten to an understanding of his defeat for some time to come, and the call for surgical assistance will not quiet until every German himself knows that Germany has lost.

REPORT OF PROVOST MARSHAL GENERAL ON FIRST DRAFT.

Under date of December 20, 1917, the Provost Marshal General has issued a report of the results of the first draft for the Army under the Selective Service Law. The report is compendious and will afford material for much interesting study. On June 5, 1917, there were enrolled a total of 9,586,508 men, of whom 3,082,949 were examined. Of this latter figure 1,057,363 were certified for military service. Of those so certified, 252,294 failed to appear when called for examination and according to the law were accordingly certified for service. This leaves, excluding also certain other minor classes, a total of 2,510,706 men who were actually examined by local boards. Of these, 730,756, or 29.11 per cent. were rejected for physical incapacity. Of these, 22,989, or 5.8 per cent., were rejected after being sent to cantonments by the local examining boards. Of the California men, 26.17 per cent. were disqualified for physical reasons.

Practically one-half of those called claimed exemption on some ground and of these 39 per cent. were exempted, constituting 77.86 per cent. of the total claims made for exemption. Less than 6000 arrests were made for failure to register.

The total expense of the draft was \$5,211,965.38. The average cost per registrant was \$0.54, per man called was \$1.69, and per man accepted for service was \$4.93.

Certain lessons and guides for the future are drawn from the results of the first draft which are worthy of consideration. It directs attention to the strategic necessity of the three vital industrial fields of shipbuilding and manning, munitions manufacture, and agriculture. The order

of mention of these three is significant of their relative importance for the war. Emphasis is placed on the reasons leading to a complete revision of the draft regulations and the classification of all men in the draft age according to certain rules. The first draft showed itself a powerful force in controlling and distributing labor throughout the country. Later it may be necessary for the Government to draft labor directly, a proceeding well within its powers and rights. But before such a necessity, it would seem that the principles of the revised draft should be tested thoroughly as they give promise of functioning to this desired end. "The entire industrial field must be explored, provision of facile and effective methods must be perfected, and the selective service system must stand as a pervasive and supple control which shall serve its purpose, so far as its powers make possible, in co-ordinating the man power of the nation and so fostering its industries in a nice and impartial balance which shall carry forward all varied endeavors, not singly or irregularly, but compacted in an even and synchronized march."

Many features of the data from the first draft are not yet available. Some of these we would especially like to see. It is much to be hoped that comprehensive data from the physical examinations will be available which will throw light, for instance, on the amount of previously undiscovered illness and disability. The lessons to be learned in the control of individual diseases are important. Especially is this true in the case of syphilis and gonorrhea. The control of tuberculosis, as a national problem, will be fostered by the data here elicited. The valuable results of physical examinations of a fairly uniform character on a large number of representative young Americans drawn from all parts of the country, should be carefully collated and preserved.

THE DECLINING CIVILIZED BIRTH RATE.

It is an undisputed fact that the birth rate falls as civilization advances. Birth control and civilization go hand in hand. It is also an undisputed fact that the portion of the population of the United States which is economically and socially (not fashionably) lower, is most productive or better, reproductive. In the last three and a half decades the trend of European immigration has swung from the north to the south. Whereas previous to this period, four-fifths of the immigrants were Scandinavians, north Russians, north Germans, and from the English isles, during this period and up to the great war, four-fifths of the immigrants were from south and east Europe, and comprised Slavs, Balkan races, south Italians and Greeks. The result has been a significant change in the rate of Americanization of the new elements, and a tendency to segregation of racial types and perpetuation of racial customs and ideals. This is not desirable from the American standpoint.

Along with this change in the character of immigration, and perhaps closely related to it, has been a change in the relative rate of increase by birth of the two general groups. In the older,

more cultured and in some ways more highly civilized group, the birth rate has receded. In the newer, more dissimilar, less advanced, recently added group, the birth rate has remained high or has perhaps even increased over its normal rate for the same group in Europe. The result, of course, is a tendency to replace the socially and economically higher group, with the group which is more virile but of a lower mental and social development. In this lies the peril of the falling birth rate which seems to characterize most civilized nations.

In an address before the American Association for the Advancement of Science, Louis I. Dublin¹ draws an interesting comparison between the rates of population increase in France, England and what is now Germany. He notes that at the beginning of the nineteenth century France led with 29,000,000, Germany was second with 23,000,000, and England was third with a population of about 18,000,000. A century later Germany was first with about 65,000,000, England was second with some 45,000,000, and France was third with 39,000,000. Thus the German population had trebled, England had increased by two and a half times, while France had increased less than one-half. In more recent years, he finds that the birth rates in both Germany and England have fallen considerably, although not to so great a degree as in France.

The National Birthrate Commission in England, reporting in 1916, stated that the birth rate had declined about one-third in the last thirty-five years and that the decline was due to a conscious limitation of the birth rate in the large mass of the population. Thus it seems that England is following close in the footsteps of France.

In the United States the rapid increase in total population has, of course, been largely facilitated by the high immigration rate. It has been further increased, as already noted, by the high rate of reproduction of the foreign-born rather than of the native stock. Dublin shows that there has been a pronounced and progressive decrease in birth rate in the United States for a period of years, and as in the case of France and England, the decrease has been selective and at the expense of the better and socially more valuable elements of the population. Cattell showed² that of 643 American men of science, the families from which they had sprung averaged 4.7 children each, whereas the families of these men themselves averaged only 2.3 children each. This figure is totally inadequate to maintain the status quo of the population, let alone providing for a healthy increase of population. Dublin quotes R. J. Sprague to the effect that in order to maintain equality of population, providing for infant mortality, adolescent mortality, unmarried individuals, sterility of marriage, and other minor factors, the average family must have almost four children.

In his arraignment of American national life, Dublin puts his finger unerringly on the point of

fault. This he states, is the failure of the educational system to inculcate national and altruistic ideals. "Our young men and women must be taught to realize early that we do not live for ourselves; that our intellectual, economic and social advancement must be carried forward not only as a tradition but more especially in terms of new vigorous and worthy personalities. Our educational system must make our various racial groups conscious of their best traditions and instill desires to see their better strain strengthened and increased as a foundation of the greater democracy of the future."

Many things can be brought to assist this desired end. Among these may be noted various economic premiums on larger families, tax exemptions for children, and above all, the honor and respect of the community for the woman who devotes herself to the rearing of a larger family in place of a public or other career. The very fault which Dublin invokes will be summarily dealt with by the war. A new national sense, and a new sense of brotherhood and realization of the obligation of service, will be among the inevitable sequents of the war. In fact they are developing during the war at an unprecedented rate.

PHYSICIANS' REBATES FROM DEALERS.

It is an established principle of medical ethics that no physician should accept a fee from another physician for referring patients. A corollary of this makes it unethical for a physician to pay fees to *anyone* for referring patients. If it is true that some physicians persist in this reprehensible practice of fee splitting then they should receive summary action from their local societies and short shrift in the good graces of their more honest and respectable fellows. On these matters there is common agreement, at least in the medical profession. In the matter of rebates from drug houses, for patients' prescriptions, and from surgical manufacturing houses for apparatus and appliances ordered for patients, there seems at first glance to be a decided difference. And yet, as we pointed out last month (Physicians' Commissions and the A. M. A., Editorial), exactly the same principle is involved. The patient has a legitimate right to know to whom and for what he is paying his money. The physician has no professional or ethical right without the knowledge of the patient, to collect two fees for the same service rendered.

This matter is succinctly and honestly stated in a letter from the proprietor of a surgical appliance house. The following is commended to the thoughtful attention of physicians:

"Replying to your query regarding our current practice for rebates or commissions to physicians who send us their patients for surgical appliances, will say that since December 1st we have not paid commissions in any form to any physicians. We adopted this ruling for two reasons. One is the impropriety of such a practice and the other is the increased cost of both raw and finished materials, and to continue this practice would necessitate a

1. Science, March 1, 1918.

2. Scientific Monthly, March, 1917.

much greater price to the consumer than is now charged. We are much pleased to say that we have on our list a large number of physicians who have answered our rebate check with a letter stating that they could not conscientiously accept a commission from us inasmuch as they had made a charge to their patient which they considered sufficient. This is purely a business proposition with us and if we find that our business through the physicians very materially decreases through this practice, we may find it necessary in the future to resume this sort of business."

Notice two things: First, the physician can not expect the dealer to hold a higher ethical standard than does the physician himself. If this particular firm reverts to the old custom, it will be a step backward and downward, and will be due to lack of support from physicians who prefer to receive rebates. Second, the letter quoted shows exactly how the patient has been forced even without his own consent to pay much more than the article was worth, in order that the physician might be given a rebate. The custom of such rebates is doomed and ought to be rendered obsolete by the medical profession. The custom will die as soon as all physicians are allied with those quoted above who returned their rebate checks. The dealer will render the service which pays the best and it is no hard matter to make it a paying proposition for him to be honest in his service charges. For after all, there is not the same obligation on the dealer to stop rebates as there is on the physician. The honest and honorable physician will not accept such rebates and will not deal with houses which offer them. JOURNAL advertisers, to the best of our knowledge, do not give rebates. Their goods are offered at fair prices and that is still another reason why every physician in the state should patronize our advertisers. The stamp of the JOURNAL insures honesty and no fee splitting.

NEW PLANT FOODS FOR MAN.

The effects of the war on food economics and metabolism, bid fair to far outlast the war in many respects. One permanent and valuable result will doubtless be a recognition of new articles of diet which have values not hitherto noticed or employed. Along this line, C. H. La Wall¹ contributes an interesting and valuable study of plants which are available now as food which were not considered in any wide sense previous to the war. He aptly states that we have food conservation and also food conversation, and both have a legitimate place. The trial and introduction of new articles of diet may well bring valuable additions to the regime of civilized races. That this has occurred in the past, is shown by Dr. Johnson's characterizing oats as "a grain fed to horses in England and to men in Scotland." The changed sentiment regarding tomatoes, and the original limited habitat and use of corn and potatoes are also cases in point.

La Wall notes the nutrient properties of alfalfa

1. Amer. Jour. of Phar., March, 1918.

which has a high food value and a low cost, and is chiefly handicapped by a large percentage of crude fiber. Chinese cabbage, cactus, cardoon, a mammoth celery chiefly grown in Europe, celeriac, chayote, chard, chicory, and cotton seed flour are enumerated. Dasheen is a new tuber, that is, new in the United States, resembling the common elephant ears in appearance, of which the yield per hill may run as high as twenty pounds. It has food value some 50 per cent. higher than potatoes, and is prepared and eaten much as are potatoes. It is similar to the taro and should not be more expensive than potatoes. So far it is chiefly found in the groceries of Chinatown.

Attention is called to the enormous food loss from unused "rose hips," the red fruits of the wild rose which are so common in many sections of the country. They are not edible raw but should be made into preserves and confections. The soy bean is another unused source of nutrition and differs from typical beans in having much more protein, less carbo-hydrate and more fat. Its caloric value is 1970 per pound. The addition of rice to a soy bean dietary gives a well balanced diet.

The Bureau of Plant Industry of the Department of Agriculture is endeavoring to introduce new vegetable foods which in many cases are already in use elsewhere in the world but have not received proper attention in the United States. It is an important and fascinating subject and well worth some study from physicians.

NURSES FOR THE NAVY.

The Navy Department has issued a call for an unlimited number of hospital corpsmen for duty on board ships as soon as they finish the required course of instruction at the Naval Hospital Schools. For several weeks enlistments in this branch of the service were practically closed on account of the congested condition at training stations. The congestion is now relieved and the Department desires to fill all schools immediately. Enlistments will be open for a period of one month, unless enlistments exceed present accommodations for training.

Enlistment in the hospital corps of the Navy will afford the average student or nurse a splendid opportunity to serve our country and at the same time continue studies and gain advancement. Many surgeons throughout the state may be able to suggest this branch of the service to friends and relatives who are eligible for enlistment and who most likely would not otherwise receive competent advice and information along these lines.

Experience as a nurse or knowledge of pharmacy is required for applicants who desire to enlist in the rating of hospital apprentice, first class. No practical experience or especial qualifications required for applicants who desire to enlist in the rating of hospital apprentice, second class; except that the applicant must have had an average general education. Examinations will be conducted by the medical officers at the recruiting stations of the Navy.

**MANUSCRIPTS FROM MEDICAL OFFICERS
IN ARMY.**

The large number of medical officers recently joining the medical department direct from civil life, and unfamiliar with the Army regulations governing the publication of scientific papers, has resulted in a number of papers being published in various journals without authority from the Surgeon-General's office. At the request of the Surgeon-General of the Army, all manuscripts hereafter received and accepted for publication, from doctors in the service, unless already properly and officially approved, will be forwarded direct to the Surgeon-General's office in order to obtain such authority. To avoid this, medical officers desiring publication of professional papers will submit two copies to the Surgeon-General with request for permission to publish same. Upon approval, a copy will be forwarded to the journal designated by the officer for publication.

EDITORIAL COMMENT.

The New York Evening Post sings a dirge over the deaths of the Great Patent Medicine Trinity, Hartman, Munyon and Ayer, in the following words: "To-day the bleak winds are howling across the fast-emptying seats of the patent Olympians. We cannot escape a sense of poignant regret which attaches to all Götterdämmerungs. Like the art of the Greeks which sank with the disappearance of the bright gods, our own landscape is bound to suffer. The Jersey meadows and the immemorial rocks along the New York Central no longer blossom with the forms and visages of these demiurgic preservers and restorers of Life, Health, Beauty, Hope,—of these slayers of the dragons of rheumatism, asthma, sick headache and that mysterious pain in the back when you get up in the morning. . . . Acute observers of American civilization used to dwell on the lust for patent medicines as an outstanding national trait. More properly it should be called an Anglo-Saxon trait. The most superficial study of English railway stations and London buses will demonstrate that passion for paper-wrapped tonics must have been brought over from England together with the language of Shakespeare. It is still difficult for the foreign traveler, longing for the first glimpse of Magdalen tower, and the Bodleian, to determine whether he has really got off at Oxford or at a place called Horsley's Health Drops. Visitors bound for the Bank of England have let many an omnibus pass by under the impression that the latter were bound for Bovril's or Eno's. An Anglo-Saxon trait with this conspicuous differentiation perhaps, that England has a preference for pills, while we concentrated on brown bottles. It is easy to imagine how the historical investigator of the future will reconstruct out of our advertising columns an entire American mythology. Munyon the health-giver for Apollo, Father Duffy for Aesculapius, Old Father John for Cheiron, Lydia Pinkham for Ceres the Nourishing Mother."

It should be within the province of the Board of Health of every town and city so fortunate or enlightened as to have such an institution, to control certain public nuisances. The abatement of the smoke nuisance is among such police powers which should appertain to the Board of Health. This can be accomplished by proper combustion and arrangements for complete consumption of carbon and gases from furnaces. Few things detract more from a city than a pall of smoke and few things are more annoying than the soot and gas from an uncontrolled furnace. Smoke may not have a definitely deleterious effect on health in moderate amounts, although this even is not certain, but it detracts from the peace of mind and efficiency of every person exposed to it, and thus is opposed to the public health. The abatement of nuisances is a necessary function of the health office and should include the prevention of singing cats, and the midnight piano-player, as well as the raising of live stock in closely settled districts and the proper disposal of sewage.

The newspapers of San Francisco are publishing extensive advertisements of a preparation known as "Tanlac." In this publicity matter, apparently paid for by the Tanlac Company, there are, of course, numerous testimonials and the usual line of quack medicine endorsements. Physicians and laymen alike would do well to turn to page 1114 of the Journal of the A. M. A. for April 13th, where they will find a testimonial entitled "Tanlac Testimony from the Tomb," with death certificate appended. This particular testimonial is commended to the earnest attention of those newspapers which publish the Tanlac advertising.

It is requested by the Hygienic Laboratory of the United States Public Health Service that physicians send to the Hygienic Laboratory, Washington, D. C., samples of any lots of arsphenamine and neo-arsphenamine which have shown undue toxicity in clinical use. It is important in sending these samples that the lot number is the same as that of the ampule actually used on the patient. The sample should be accompanied by a brief note stating the approximate body weight and age of the patient, the dose and dilution of the drug given, the symptoms and result.

This request is made because of reports in current medical literature of untoward results in the use of these arsphenamines.

Fatigue in its relation to health has been the subject of many investigations. With the beginning of the present world war and the immediate need for soldiers, sailors and munitions, the question became one of great importance. The effects of fatigue in the making of soldiers, sailors and munitions should be very carefully watched with a view to maintaining the output of training camps and munition factories at its highest level during the war. No necessary sacrifice of men should be questioned at this time, but when meth-

ods employed for speeding up this output are liable to "invite disaster," such methods should be carefully revised.

In the investigations made into the prevalence of communicable diseases by the Division of Sanitation, Bureau of Medicine and Surgery, Navy Department, the conclusion was reached that fatigue was a factor in their spread, and that "the attempt to make a sailor too rapidly is to invite disaster."—Public Health Report.

The Bulletin of the Federation of State Medical Boards states editorially that the attitude of the Federation in the matter of standardizing medical schools has been more clearly defined and the firm stand taken on premedical college requirements, conditions and advanced standing will meet with responsive approval from state boards and medical educators as well.

Whatever may be said against health insurance, one good feature would undoubtedly be the urge toward improved sanitation in working quarters and conditions. The emphasis on disease prevention would be increased, to the mutual advantage of employer and employee.

Original Articles

REGULATION OF THE PRACTICE OF MEDICINE IN CALIFORNIA SINCE 1914.*

By HARRY E. ALDERSON, M. D., San Francisco.
(Associate Clinical Professor of Medicine, Stanford University Medical School; Member California State Board of Medical Examiners.)

The present Medical Practice Act first became effective in August, 1913. It was amended in 1915 and in 1917. A movement is under way to have it further amended. Each amendment is apt to mean a weakening of the law. The object in presenting this paper is to stimulate interest in the direction of preventing further unfavorable changes by the legislature to meet early in 1919. The California State Medical Society is large enough and powerful enough to prevent the passing of freak medical legislation if it will only use its influence.

The regulation of the practice of medicine under existing conditions is almost as difficult as the attempted regulation of religions would be. In fact where religion has been permitted to assume the responsible role of medical practice it has been able to place itself outside the control of the laws regulating practice. Eddyites and other religio-medical masqueraders may practice without licenses and assume full charge of the sick in every way without being subjected to the usual legal restrictions that apply to doctors. So far, however, they have not been authorized to sign death certificates. This is a great source of embarrassment to them, for their deaths are many, and it is said that they are going to try and have laws passed permitting them to do so.

Our Medical Practice Act represents an effort to place medical regulation on a purely educational

basis (the only rational thing to do) and when properly and fully enforced by the Board of Medical Examiners it offers the very best protection of the public. The mentioning of cults and sects by name is carefully avoided. This is a good feature of the law, and as far as possible this paper will carry out this idea. It may be of interest, however, to name the various so-called "schools," cults, and sects, all of which properly come under the heading of *drugless practitioners*. They place themselves in this classification whenever they ask for special legislation providing special exemptions and special forms of licenses. The following list of drugless "schools" while practically complete at this date is constantly growing: Osteopathy, chiroprathy, naprapathy, naturopathy, eclectic chiroprathy, pantherapy, electrotherapy, actinotherapy, neuropathy, mechanotherapy, neurology, spondylotherapy, eclectic osteopathy, suggestive therapy, psychotherapy, and magnetic therapy. It will be observed that therapy constitutes the "raison d'être."

Some of those who are spending much money and effort to obtain special privileges for their followers in the direction of removing legal educational requirements are honest in their belief and they fight and plan with all the zeal of religious fanatics. Most of them, however, when their efforts are analyzed, are proven to be ordinary fakers attempting to gain by questionable means privileges for which they are not in any way fitted. They aspire to all of the rights that are enjoyed by those who, by devoting many years of study in universities and Class A medical schools, have properly fitted themselves for the responsible duties of a physician. They aim to force short cuts to the practice of medicine. They first ask for very special or limited licenses. When they once gain the same, they do not adhere to these limitations, but attempt to do all kinds of medical and surgical work for which they are not trained. In this way they prove the insincerity of all their claims.

The regulation of the practice of medicine is for the protection of the public. Without a proper examining and licensing system, the quack situation (which is bad enough as it is) would soon constitute an extremely serious menace to public welfare. Conditions would result which would bring about most insistent demands by the public for protection. The removal of legal barriers that are designed to prevent (but do not always succeed) the practice of medicine by ignorant and uneducated would-be doctors, would undoubtedly result in an increase in the amount of sickness and disability. This of course would really increase the amount of work for doctors generally. The regular medical profession, however, through the highest motives are constantly trying to increase the protection of the public by increasing educational requirements for those aspiring to practice medicine. Advocates for lower educational standards argue with legislators that the medical profession is "trying to cut down competition by making it more difficult to obtain licenses," etc., etc. Some legislators seem only too eager to believe this. When you discuss these matters with your senators and assemblymen it is extremely

* Read before the Forty-seventh Annual Meeting, Medical Society, State of California, Del Monte, 1918.

important to make clear to them the fact that the State Medical Society is not trying to limit the number of well educated and completely trained physicians and surgeons. To the contrary we feel that the more of such men there are the better will it be for humanity. We are trying, however, and some of us will keep on trying (no matter how discouraging the outlook) to see that the State Board limits to the smallest possible number those who are not mentally or morally capable of doing their full duty toward the sick public. As soon as the public realizes that they are entitled to more protection in this direction they will not permit any of their representatives in the State legislature to lower educational barriers. They will demand the passage of laws making possible only fully trained doctors,—and then will demand that these laws be enforced. Should health insurance become the law of the land, when the doctor will cost the patient practically nothing, he will promptly demand of the state the best and most profoundly educated doctor, and will be satisfied with nothing else.

Unfortunately this question has often been considered a matter for political consideration rather than a purely educational problem. This applies not alone in California but has held elsewhere. Many states have placed political considerations in the background so that now there are only a few states that are lagging behind in this phase of medical progress. One trouble is that our powerful State Society in the past has felt impelled by a peculiar combination of circumstances to refrain from taking an official part in this fight. On the other hand the leaders of the various cults, sects and special interests (representatives of low grade, commercial colleges) have raised much money, developed aggressive political organizations and by various means impressed those controlling state affairs with their political importance. They have made an impression *all out of proportion to their real importance*. Should our State Society devote one-third this energy the political "powers that be" would very promptly recognize our legitimate claim to consideration. The official organization of the regular medical profession, which includes all of those with complete medical training, the leaders and investigators in scientific medicine and research workers and teachers in the universities, and the only medical body recognized by the United States Government, is most certainly the one to consult in matters pertaining to medicine and surgery. It should only be necessary for our representative to state our position in regard to various state medical matters to the Governor and others in control at Sacramento, to ensure the adopting of only safe and sane medical legislation.

The present Medical Practice Act is a good one. It makes it mandatory on the board to place the entire question on a purely educational basis (the only logical ground on which to stand). All practitioners are divided into two classes—*Physicians* and *Surgeons* and *Drugless Practitioners*. The law also provides for the examining and licensing of chiropodists and midwives, but that will not be touched upon here.

There is absolutely no mention of cults or sects. This feature constitutes a great improvement over other acts because cults and sects in medicine seem to be designed largely to provide short cuts to the obtaining of licenses through special legislation. There are some cults, sects and schools where the originator probably thought he had discovered a new principle of treatment. Instead of investigating the idea in the careful systematic manner of a scientific research worker and finally presenting the evidence before a learned body capable of passing judgment, the "discoverer" usually founds a new "school," invests in a little equipment, advertises for students and proceeds to make money. It is the financial aspect of the thing that appeals to these great (?) discoverers and this is the root of the evil. The ease of obtaining the necessary training by paying the fees, of course, and a license, and the *quick financial returns* are always emphasized by these people in their advertising literature.

A letter written by a prospective student in December, 1913, to the largest "school" of this type received a very prompt reply in the form of a long letter, a catalogue and an elaborate illustrated souvenir, all of which emphasized the commercial character of the concern. The letter warmly congratulates the prospective student "upon having been awakened to an interest" in this work. Then follows the statement: "If you pursue the course, I am sure you will always look back upon it as the most favorable step in your *business life!!!*" The letter goes on to state that "most of the professions have become so overcrowded that there is no longer a fair promise in them," etc., etc., and that there is but one of this cult to each 25,000 persons while there is one M. D. for each 400 persons, and that at the present rate of graduation the demand for representatives of this cult cannot be supplied for twenty years!! After referring to the *money making* opportunities and the chance to help humanity (?) the following illuminating statement appears: "*There is often a disposition on the part of the prospective student to magnify the difficulties*" of acquiring this special kind of training and a license. As a result of steady pressure exerted by the State Board of Medical Examiners and with the co-operation of some really progressive members of the cult sincerely desirous of bettering conditions, this school has improved its facilities greatly. They aim to qualify their graduates for unlimited physician and surgeon licenses. They only require for matriculation, however, a high school diploma, *or its equivalent* and the college year in physics, chemistry and biology required by our law is not exacted of all their students. A report on the institution recently given me by a recognized authority in these matters states that this work was not required of 29 of the 35 admitted to the freshman class, and that as a result of the inspection the school could not at the present time be rated higher than 20 to 25 per cent. as compared with medical colleges. And yet they insist that they give as good training as may be had in a medical college!! The report goes on to state that "There was practically no teaching from the standpoint of clinical departments by members of this school's faculty, since on the entire faculty

only one M. D. appears. Such clinical teaching as the students obtained was by sufferance on the part of teachers of medical schools on the staff of the County Hospital. The clinical material at their own hospital was limited, and of these cases the histories were very poorly kept. The laboratories were very poorly equipped, but above all, the teachers have had no medical training whatever, and it is doubtful whether they have had any reliable training in the subjects which they are endeavoring to teach. Medical educators generally have been unable to understand how graduates of this school can be expected to qualify as physicians and surgeons. "It would seem more logical to allow nurses to practice as physicians and surgeons," since nurses "obtain their training in hospitals, under physicians and study the care of hospital patients by physicians." For these reasons the Federal Government has denied exemption from the draft of students attending this institution.

The greatest efforts made by the "drugless" organizations have been:

First—To encourage all who lack the necessary basic education required to enter a modern medical school, to take up work in their "school."

Second—To build up a strong political organization for the purpose of influencing those in control of legislative and governmental machinery.

Third—To influence legislators to remove barriers that prevent those lacking at least a real high school education and a year in physics, chemistry and biology, and a complete four-year medical training from practicing medicine and surgery.

Fourth—To prevent, if possible, the successful prosecution of those of their number who attempt work (major surgery or drug prescribing, for instance) which the law prohibits their doing.

Fifth—To advertise their "business" and thus induce larger numbers to enter their "diploma mills," spend their money there, and *buy their books*, and perhaps bring them "consultation work."

These various cults have this much in common: they are interested in seeing educational barriers removed. Some of them are sincere in their belief that they are able to do something for humanity, but most of them are "on the same side of the fence" when it comes to influencing legislation. The more enlightened ones of course would like to have standards higher than those lower down the scale, but "*not too high*." Illustrating the attitude of the supposed "higher ups" toward the less fortunate of these various cults the following incident may be of interest. Several years ago at a hearing on medical laws the governor asked of the crowd present, the difference between osteopathy and chiropractic. A representative of the osteopaths promptly said: "Chiropractic represents the first three weeks in osteopathy," whereupon the chiropractic representative objected and asserted that his cult was more advanced than osteopathy. And then the battle was on!

Of these various drugless cults the representatives of the one now in the lead are not satisfied with the very *low* requirements desired by most drugless healers, but they do not desire as high requirements as good medical schools demand. And

they are depending upon the political power of their organization to weaken the law in their interest. For instance, they want to have a high school diploma, or "*its equivalent*," made the maximum preliminary requirement. This phrase "or its equivalent" is a dangerous one, for it can be seen how a lenient board might accept almost anything (for instance, several years' experience selling real estate) as the equivalent of a high school education. I am advised that the organization referred to is also going to try to have the "year in physics, chemistry and biology of college grade" (which after January, 1919, will be necessary) taken out of the law or so modified that this work can be given along with the four years of medical work! Their leaders, who are keen, shrewd men with business and political instincts well developed and sharpened through years of fighting to gain special privileges, assume a desire to improve medical educational conditions. Their actions belie their words as amply proven time and time again. Their record is one of trying to keep standards *lower* and to adhere as closely as possible to minimum requirements of the law instead of really elevating standards. It can be said that the better element amongst their number today represent the type of physician produced by a Class B school twenty years or more ago with the difference that they lack the training in materia medica, pharmacology, therapeutics, bacteriology, pathology, diagnosis and general surgery, etc. Their organization has as a nucleus a largely attended college which could be considered a good drugless college, but which they insist upon being given exactly the recognition granted Class A medical schools. They admit that they do not give a complete medical training and refuse to do so. The board has given them temporary approval. During one year their demands for approval were successfully resisted and they were accepted as a drugless practitioner's college only. All that time they exerted their political power to the utmost, threatened legal action, initiative procedures, etc., but without avail. They have improved their school and now stand approved, however, and in this way our standard at present is set. Naturally every college better than this standard has to be approved! Through a recent amendment to the law which permits them to qualify for an unlimited physician and surgeon license by taking an "oral, clinical OR practical examination" a considerable number have gained these licenses. A very large percentage who took these oral examinations, however, failed to pass. License or no license, many of them prescribe drugs and perform surgical operations and have been doing so for some time. The records of the Industrial Accident Commission, the State Compensation Insurance Fund and various insurance companies show instances of such practice, and also that they bring strong pressure to induce payment of their claims for services, when refused.

Probably the best way to classify practitioners of these various cults and sects would be to say that they are specialists in the narrowest sense of the term. Their exponents base their claims for special consideration by legislators partly on the fact that they have a very special system or method of treatment and that it is not necessary for them

to have the broad education demanded of doctors of medicine. But once they obtain the desired special legislation and then the coveted special licenses, they are not willing to be limited in their work. They are inclined to use drugs and the surgical knife. A recent licentiate who worked for the drugless practitioner feature of the law and whose good recommendations and good record at the board's oral examinations gained for him a drugless practitioner license, has very recently applied to the United States Government for a narcotic license (Harrison Act)!!! They gain their ends by claiming that treatment is the all important part of practise. Every effort should be made to impress upon your senators and assemblymen the fact that therapy is not the only thing. It does not matter what specialty, system, cult, sect, or "school" an applicant may profess to follow provided he has sufficient education. At least one year of physics, chemistry and biology of college grade, in addition to a complete high school education and then a complete four-year medical course, should be required of everyone applying for an unlimited physician and surgeon license. The various groups of drugless practitioners are not satisfied with limited licenses. The law provides for them a drugless practitioner license which permits them to do all that they advertise that they do. That part of the act defining the educational requirements of drugless practitioners and the legal scope of their work is very good. When it comes to asking for a lowering of educational requirements for their followers, these people make a great point of the claim that they are not asking the privilege of practicing medicine and surgery, but wish to do only very limited work which does not require the training necessary for an M. D. degree.

I am informed that various "drugless" cults are combining now to have the legislature do away with some of the best protective features of the law which include the required year in physics, chemistry and biology and also the requirement that all colleges must be *approved by the board* before their graduates can take the state examinations. The examinations are easily passed by any one with a good memory and a fair amount of training. They extend over a period of only three days and are all written. These are no practical tests. A general average of seventy-five per cent. is required, and a candidate may fall below sixty per cent. in two subjects without failing. The test is largely one of a parrot-like ability to repeat what a candidate has crammed into his brain for this special purpose. Written examinations of this sort are not sufficient in themselves to properly gauge a candidate's ability to make diagnoses and meet the responsibilities that come to every physician and surgeon. As far as they go these examinations are good enough and the board has done its best to make them comprehensive. But as the principal and all-embracing test they are far from sufficient. The "drugless" element is strong for these written examinations and bitterly opposed to thorough practical tests. If the examinations are to be the sole test they should be made thorough and should be practical as well as theoretical.

They should extend over a much longer period, say one or two weeks. They should be conducted in the laboratory as well as in hospital wards. This method is carried out successfully by the National Board of Medical Examiners. Our law makes such examinations possible through the appointing of special examining commissioners (not necessarily from the board) to serve from time to time. This has never been taken advantage of, but there is hope that it may be some day. As matters are now, it is vitally important to scrutinize the applicant's credentials thoroughly. If this valuation of the credentials is thorough the written examinations are relatively unimportant.

Periodical thorough inspection of all medical teaching institutions in California should be made after the manner of the Council on Medical Education of the American Medical Association. So well recognized has become the A. M. A. classification of medical schools, that many states have officially adopted the same. Many that have not done so have unofficially depended upon this classification in passing upon candidates' credentials. The California State Board of Medical Examiners during the past four years has made several investigations of California schools. Over this very question much difference of opinion has arisen. It is a very difficult proposition. Out of it all, however, has come some good. Colleges have been forced to improve their physical equipment, faculties and general teaching facilities, but still there is much to be desired in this direction.

In these serious times we should endeavor to cooperate with the Federal Government to the fullest extent possible. We should strive to maintain educational standards high enough to ensure that only properly educated medical men are made ready for the Army and Navy. The Federal Government well recognized its responsibilities in this direction by temporarily exempting from the draft students attending well recognized medical schools (that is, schools approved by over fifty per cent. of the states). Upon completion of their education these students enter the service as medical officers. In this way, only Class A and B schools of the Council on Medical Education Classification of the A. M. A. have become approved. We should at least make the minimum requirements of our Federal Government our minimum requirements. Our duty to the public is particularly pressing now that so many of the best physicians and surgeons have gone into the Army and Navy. Some communities are thus left without competent doctors. It is clearly in the interests of public health that only competent doctors should fill these vacant posts.

The "approval by the board" clause is vitally important. Attempts are going to be made to have it removed from the law. As a means of compelling institutions to do honest work and maintain proper faculties and equipment, it is most important. The State Board of Medical Examiners is the only barrier that stands between the public and the hordes of would-be doctors many of whom with no training at all think that they have been endowed by God or someone else with special ability to cure without diagnosis.

The representatives of the drugless schools have tried hard to have this "approved by the board" clause removed. They admit that a college ought to meet certain requirements in the way of physical equipment, but they insist that this can be set down in black and white, leaving nothing to the discretion of the board. To use a favorite expression of theirs, the law should provide a definite "yardstick" by means of which *alone* one should judge a school. Their idea is to have a few formal easily met requirements set forth in the law, possibly specifying the number of lecture rooms, chairs, tables, desks, blackboards, electric lights, bottles, charts, etc., and by complying with these few simple requirements force the board to approve of their schools. The real worth of a college does not depend upon physical equipment, but rather on things that cannot be "measured" in this way. The character and qualifications of the faculty, quality of the work done, the scientific spirit, the care that is taken to see that the students are properly instructed, and the records of the graduates of an institution, are all things that cannot be measured by a "yardstick." The existence of a large student body does not necessarily mean that a school is a good one. It may mean that the requirements for admission are low and the work offered easy. Commercial institutions of that sort are bound to have as many fee-paying students as their promoters can induce to attend and the minimum amount of profit-consuming equipment. "Diploma mills" pay good money and the "educators" (?) that they attract are not the kind to do honest constructive work. A properly conducted modern medical school costs money to run, as a rule five times as much as taken in fees being spent per capita. The State Board has a certain responsibility in this matter of regulating schools that may be lost sight of. It is the responsibility to the individual student who may enter one of these schools, spend time and money only to find that he is working for a diploma that will be worthless and not recognized outside the state. To my knowledge this has occurred several times. As a means of compelling teaching institutions to give their students an honest return for their time and money, the "approved by the board" clause should be retained in the law.

Reciprocity with other states is much to be desired. In the beginning our law provided for a one-sided reciprocity—i. e., we granted reciprocity licenses to licentiates from other states, but were not permitted to require the return of this privilege. Fortunately it was possible to have the law amended later permitting us to make contracts. The purpose of the original arrangement seems to have been to keep us from being placed in a position where other state boards would demand that we raise our standards before they would accept our licentiates. You can see here the fine hand of parties responsible for this legislation who were vitally interested in keeping down the standard within our state. After four years of "reciprocity" during which time California has extended the courtesy with a free hand to licentiates from most of the states, there are very,

very few that have actually reciprocated with us. However, many states now have signified a willingness to accept our licentiates *provided their college credentials are satisfactory*—i. e., equal to Class A and B schools.

Composite boards would be all right if the members could be made to realize that their first duty is to the public. But the trouble is that on account of the very fact that men are selected from different cults and sects, they are apt to consider that they represent these special interests. This feeling that members are appointed to satisfy the different interests is responsible for lack of harmony.

As a matter of fact, the board is supposed to represent the public whom it is sworn to protect. The members ought to be appointed to administer the law without regard for cults, sects and interests. There is nothing in the law to prevent the Governor from appointing a board made up entirely of members with a complete medical education. Such men surely would be the ones best qualified to enforce the law in the interest of the sick public. There is a provision in the law which permits the board to appoint special examining commissioners. To satisfy the various cults and sects the board, from time to time, could appoint specialists representing these cults and sects to give part of the examination. Surely no one would object to such special examinations, provided the candidate were examined by experts in all the fundamentals of medicine. Our law provides the means of handling this troublesome question in a manner that ought to be satisfactory to all honestly concerned in seeing the giving of licenses based on merit only.

The prosecution of violators of the law is a large subject and will be left for a future paper. One of the troublesome problems confronting the board has been that of stopping the practice of surgery and the use of drugs by those whose training and limited licenses do not warrant such practice. There are many who are openly and defiantly doing this in violation of the law. Why they are able to do this will be made a subject for special discussion in the near future.

The outlook for the future is fairly good. With a growing realization of the importance of keeping the regulation of the practice of medicine on a purely educational basis it will be increasingly more difficult to weaken the force of the law. With realization of the fact that the members of the board are appointed *solely* to enforce the law for the better protection of the public, will come the much desired elevation of educational requirements. Those trying to induce legislators to lessen this protection grossly insult the great majority who are sincerely desirous of seeing that the public is provided only with educated and capable physicians.

The legislature will meet in a few months and we may expect the usual assaults on the Medical Practice Act. Each session has seen less and less of a desire on the part of legislators to change the law. It is hoped that this time no changes will be permitted. Great preparations are being made by the drugless bodies, the amalgamated quacks

and all interested in doing away with barriers that keep the uneducated, half educated, mentally and morally unfit from practicing on the public. Funds are being raised and material is being prepared for the great biennial drive, the great winter offensive. We may expect much mud-throwing and the usual efforts to cloud issues so as to hide the real motives of those wanting to amend the law. A favorite line of attack is to go after an imaginary "medical trust" and try and make it appear that it is striving to cut down competition by keeping worthy candidates from obtaining licenses! Another favorite one is the "poor boy" argument! Why not let the poor boy who has no basic education, take a short course in one of these schools and gain the wonderful knowledge and skill made possible by their teachers in a few months? Why deny the poor man who does not want "high toned high brow doctors" the great privilege of having these "short cut" geniuses? If some of these people had their way we should have night schools and correspondence schools of medicine in large numbers in our midst, for they pay the promoters well. From the beginning of a session of the legislature to the end, these people have well paid, active, aggressive representatives on the job day and night. They begin their work long before legislature convenes. In fact some of them keep up their propaganda constantly. Although these different cults and sects have relatively few followers when compared with the medical profession, they have very active aggressive organizations that make an impression all out of proportion to their legitimate importance. They keep constantly working on the Governor, his advisors and the legislature. On the other hand, our great State Medical Society remains more or less passive until the eleventh hour, and then, unless something very vital is at stake, it does little when it might do a very great deal. *Legislators as a rule do not want to pass bad laws.* But when they feel most of the pressure coming from one direction for or against a bill it is perfectly natural for them to be influenced. The average senator and assemblyman wants to be guided by the "voice of the people" and he is very much interested in telegrams, letters, petitions and delegations that come in the interest of any bill. The representatives of various cults desiring special legislation make full use of this fact and through their organizations see that on a given signal, telegrams, letters, etc., pour into Sacramento from every part of the State. It is remarkable how very numerous are these messages sent to the Governor's office for or against medical bills awaiting his endorsement or veto. The California State Medical Society with very little effort can make its great influence felt in this way on behalf of *sane* medical legislation. Not only would its assistance in this manner be welcomed by those in authority in Sacramento, but the state board itself would respond. As the organization of the greatest number of licentiates in the state, with its members amongst the leaders in every community including also the teachers in the universities and colleges and the leaders in scientific medicine, our advice properly presented is most certain to be heeded.

ARTHROPLASTY OF THE HIP JOINT, MURPHY METHOD. REPORT OF FOUR CASES.*

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I believe that the cases I will report will justify your attention, in that I will endeavor to show that the operation of arthroplasty of the hip joint, as taught by the lamented John B. Murphy, is a highly practical and justifiable operation, even in the hands of those who are doing limited surgery, and are less adept than our specialists. The results obtained are so satisfactory that it should be urged in all cases at the proper time to restore the patient to a normal condition in life, and done before secondary deformities, as tilting of the pelvis and spinal curvature, intervene. We freely admit that such a condition as an ankylosed joint should almost never occur; that prompt attention to the tuberculous, and immediate aspiration, injection and extension, of the septic joint, would prevent such a pathological state and preserve the joint in its normal state. But so long as it is human to err, such joints will present themselves for our correction.

I will give you a very brief history of four cases upon which I have operated.

Case 1. Mrs. T., age 26, housewife. In 1906 had a miscarriage at two months and seemed to do well, but discovered about two weeks later all was not well and was curretted at her home. Was up in one week. Three or four days later was taken with high fever and darting pains in right hip, which soon were continuous. This continued for about 10 days, gradually getting worse, when she was taken to the hospital and an opening made just below the right inguinal region, which discharged considerable pus.

At irregular intervals from this time on new openings were made with pus discharge and with necrosed bone, until finally in 1909 she left the hospital with right hip ankylosed at an angle of 25 degrees and right knee flexed at 25 degrees and partially stiff.

In this condition she came into my hands and was operated upon on March 27, 1914. She had an uneventful convalescence. The pictures and x-ray plate show the result. There is some shortening due to loss of bone about the pelvis and head of the femur but the joint has as free motion as the left. The knee joint has, through use, returned to normal. It has given her a very serviceable leg.

Case 2. Mr. H., age 26, teacher. Gives an uncertain history of tuberculosis of the hip joint finally resulting in complete ankylosis at the age of 12. Since that time has walked with an extension on his shoe. Gradually curvature of the spine developed. This was followed by trouble in the 12th dorsal vertebra resulting in a marked kyphosis at the dorso-lumbar joint. Walking and sitting put a strain upon this, rendering it painful to such a degree that relief was sought. It seemed to me that a joint to relieve the right hip, would remedy the trouble, and so the operation was urged. It happened that Dr. John B. Murphy was visiting in Pasadena at the time. Mr. H. learned of this and wrote Dr. Murphy, stating his condition, and asking advice. Dr. Murphy examined him, studied the x-ray picture, told him, "Your chances of success are about 80 to 20," and advised the operation. This is another instance showing where

* Read before the Southern California Medical Society at Redlands, May 3, 1917.



Case I. The operated joint.



Case I. Free abduction.



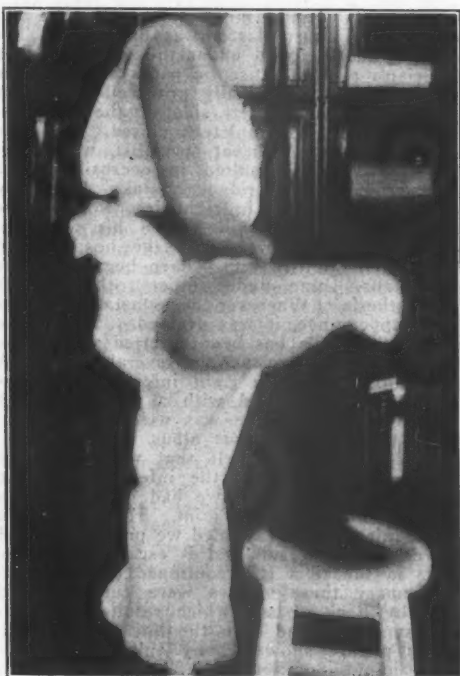
Case I. Angle at which hip was ankylosed.



Case II. Note scoliosis, kyphosis and pelvic tilting.



Case II. Shortening.



Range of motion after operation.



Free adduction.

Dr. Murphy's heart lay. The x-ray shows the hip dislocated backward with a bony thickened neck obliterating landmarks. The operation was performed, following the Murphy technic as nearly as possible. Everything had proceeded well, the bony union was chiseled away, and I was ready to make the acetabulum, when a pocket of pus was opened. Had the pus been encountered earlier, drainage would have been established and the operation finished at another setting. Under the circumstances it seemed best to finish the work in hopes of sterile pus. However infection set in with a very stormy time, ending with discharging sinuses. These, under Beck's paste, have practically closed and, strange to say, we have a joint with limited motion, but enough to relieve the back, which is free from pain and apparently healed. This young man is now strong, walking without crutch or cane, riding his bicycle and leading an active life, happy in obtaining relief, though not to the degree hoped for.

Case 3. Miss D., age 17, when 11 years old gives history of condition of right hip diagnosed at the time as tuberculosis. Was treated by rest in bed, extension casts, etc., covering a period of about two years, leaving the hip dislocated backward with bony ankylosis, as is shown in the x-ray plate.

She was operated upon, the hip joint being exposed in the regular way and the bony union chiseled away, the acetabulum deepened, head rounded, fascia flap sutured in place around the acetabulum, and the wound closed in the usual manner without drainage. She was put in bed with Travois splint, and Buck's extension and 20 pound weight. She remained in the hospital seven weeks making an uneventful recovery. She is now walking without crutch or cane, and has very good range of motion.

Case 4. This little man, Virgil Hancock, has an interesting history leading up to his present trouble. Age 12, school boy. He was well and in good health until July 2, 1913, when a small red

spot appeared on the inner surface of the left knee, felt sore, court plaster was put on it. The next day pus was found under the plaster. Upon a physician's advice, antiseptic packs were applied to the knee and it gradually got well. On July 8th, the inside of the left side of the nose became swollen until completely closed. He then consulted a nose and throat specialist, who opened the abscess. It resulted in necrosis of the cartilage, causing the bridge to sink. July 10th, he complained of pain in right leg, this became worse with fever and chills, when his physician Dr. J. I. Clark, moved him to the hospital and asked me to help with him. Then began a series of operations, some under ether, others under local anesthesia. Wherever a metastatic process made its appearance, it was drained. Half of the bone of each patella has been curetted away. The right tibia has been opened in several places. A thrombus formed in the right internal saphenous vein, which was removed with a portion of the vein. Autogenous vaccine was used. The infection was the staphylococcus albus.

By Jan. 1st, 1914, we felt that we had pretty well won our battle over the infection. In the multitude of involvements, we had overlooked an infection of the right hip joint. Had this been aspirated, injected and extended we probably would not have had this result, but it escaped us. The openings in the tibia still continued to discharge, so in January these sinuses were curetted and followed by Beck's paste, which resulted in complete closure. In due time the boy was around. An x-ray picture showed bony ankylosis of the right hip joint. Sufficient time having elapsed to regain his strength, and all evidence of the infection having ceased for a number of months, on July 19, 1916, he was operated upon, following the usual technic. He remained at the hospital four weeks, the wound healing by primary intention. A few small pieces of bone that were not carefully wiped away in chiseling, came from the wound, causing some discharge. In eight weeks he was out of bed on his crutches, in ten weeks dispensed with his crutch and today is an active boy with good hip motion, which is gradually increasing and we think will be the equal of the left in a short time. Dr. Murphy states that maximum motion is not obtained in less than two years.

I will review very briefly the technic of the operation as taught by Dr. John B. Murphy.

The steps are as follows: The U-shaped flap includes the skin, fat and fascia lata. This begins about an inch below and to the inner side of the anterior superior iliac spine and extends just below the trochanter, ending about five inches behind the starting point. To gain more room a straight incision down the leg is made. The flap is turned upward. By means of the needle carrier, the chain saw is passed beneath the muscles from behind forward above the trochanter, down to the capsule. The trochanter is removed by sawing from above downward and outward. This is held upward out of the way, exposing the joint. The capsule is cut at a right angle to the fibers. The bony union is cut by means of the chisel. When complete, the head of the bone is rotated backward by an assistant. The acetabulum is deepened or formed with the chisel or reamer. The head of the femur is then smoothed and rounded for the joint surface. The fascia and a portion of the fat of the flap is dissected off from the point toward the base, leaving it attached at the base to give it circulation. The free end of the fascia is sutured around the acetabulum, being brought

posteriorly to the muscle removed with the trochanter. The head of the bone is rotated into the acetabulum. The trochanter is brought to its place and nailed with a finishing nail. The muscles are sutured. The flap of skin is then sutured. The patient is placed in a Travois splint to maintain abduction and with Buck's extension to hold the joint surface apart, to prevent pressure necrosis of the intervening fascia. The extension weight for an ordinarily muscled adult is twenty pounds. This is maintained for about four weeks. Then the patient is allowed up on crutches each day. They will enjoy some weight at night at this time.

After the first week a little passive motion, gradually increased, will help the muscles. As soon as the patient is out on crutches, the leg is put through the motions of walking. Depending upon the stamina of the patient the leg will be doing full duty in eight or more weeks.

Success depends upon the following factors:

1. A joint that has healed, containing no walled-off pus pockets.
2. Absolute asepsis, exceeding that of abdominal work.
3. Complete hemostasis.

AMEBIASIS: ITS RADICAL CURE WITH COMBINED EMETIN AND SAL-VARSAN PRODUCTS.*

By HERBERT GUNN, M. D., San Francisco.

For some time after the introduction of emetin hydrochloride in the treatment of amebic dysentery it was believed by many that an amebicide had been found which, if properly employed, might be expected to destroy the amebae, relieve the symptoms, and result in most cases in a cure. While it is still held by some observers that it is an amebicide, it is conceded by most that it has no effect in destroying the encysted forms and that recurrences are the rule after clearing up symptoms by its use. Further, it was shown by Allen, Baermann and others that emetin does not destroy the amebae in the intestinal tract to the extent that the amelioration of symptoms would lead one to believe. Attention has been called repeatedly to the ill effects sometimes following the use of emetin, such as muscular weakness, especially marked in the lower extremities, and often persisting for weeks after the drug has been discontinued.

My own observations in a limited number of cases had been that while the acute dysenteries were usually relieved, often very quickly, and apparently cured by the use of emetin, recurrences were the rule, amebae being demonstrable in the stools within a month and symptoms recurring within six or eight months. The impracticability of clearing the stools of amebae with reasonable doses of emetini hydrochloride was well demonstrated in several cases of this series, especially in cases No. 1, No. 4, No. 6 and No. 7.

In 1914, Winn in the Panama Canal Zone, and

* Read before the Forty-seventh Annual Meeting of the Medical Society of the State of California, Del Monte, April, 1918.

Willits in the Philippines, stated that very good results had been obtained with the use of neosalvarsan and salvarsan in both acute dysenteries and carriers. Since then occasional reports have appeared on the use of these drugs, or allied products such as arsenobenzol, in the treatment of dysentery. Some have suggested their use where emetin-resistant strains of amebae were encountered.

Since the publication of these articles, I have used neosalvarsan and emetin combined in a number of cases of *Entameba histolytica* infections, with apparently far more satisfactory results than were obtained with the use of emetin alone or by other methods.

In a series of cases an attempt was made to determine definitely whether or not it was possible with the use of emetin and neosalvarsan, salvarsan, or novarsenobenzol, to effect a radical cure, by which I mean a disappearance from the stool of motile amebae and cysts, the stool remaining clear on repeated examinations over a period of at least two months. Ordinarily cysts or motile amebae can be demonstrated in the stool within two weeks in cases where they have disappeared temporarily on account of treatment. Occasionally this time may be exceeded, and the most careful and prolonged search will be negative up to thirty days, rarely longer.

In Case 2 of this series the stool was negative on the 36th day, but only one cover-slip preparation was examined, which is sufficient for practical purposes but which is not enough of an examination to give absolute data. In practically all the examinations made in this series, amebae and cysts were found on the first cover-slip examination, if found at all; but in most of the cases several cover-slip preparations were examined before pronouncing the specimen negative. The stools, usually liquid as a result of salts, were examined practically immediately after passage, thermos bottles being used to keep them warm when transported. Several patients who left shortly after the conclusion of treatment have remained well, according to reports, but these are not included on account of lack of absolute data. Several other cases are at present under treatment, but sufficient time has not elapsed to include them.

The salvarsan, neosalvarsan and novarsenobenzol were used intravenously, and the preparation of emetin was the hydrochloride, in tablets or ampules, manufactured by Burroughs & Wellcome, and was given hypodermically.

In all of the acute cases noted, entire recovery from all symptoms resulted; in most of the chronic cases recovery from symptoms was complete or partial.

In nine of the 21 cases herein reported the disease was contracted in California. In most of the rest it originated in the Philippines, Guam, Java, Mexico, Central or South America.

Case 1. Acute type, originating in California. Two and one-half years ago received a desultory course of emetin treatment over a period of about one month, being given about 17 injections, totaling 10 grains. All symptoms were relieved and

the stool was free from amebae a few days after the end of treatment. Six months later symptoms recurred and he was given $2/3$ grain of emetin hydrochloride three or four times weekly over a period of four months, about 54 injections with a total of about 36 grains of the drug. After remaining well for about seven months, symptoms again recurred. The patient then administered the drug to himself and took about 84 injections of $2/3$ grains each, a total of 56 grains, over a period of about seven months. Two and one-half months later a mild recurrence of symptoms brought the patient under my observation. Up to that time he had received about 155 injections, representing about 102 grains of emetin hydrochloride, the preparations used being either the tablets or ampules of Burroughs & Wellcome. The patient was then given emetin hydrochloride Gr. 1 daily for ten days, followed by neosalvarsan 0.6 Gm. and supplemented by 4 grains of emetin during the next eight days, a total of 14 grains of emetin and 0.6 Gm. neosalvarsan during this course.

Four days after cessation of treatment, actively motile amebae were present in the stool.

Four days later salvarsan 0.4 Gm. was given, and two days later the stool was negative for amebae or cysts.

Seven days after the administration of salvarsan actively motile amebae were again present in the stool.

Emetin treatment was again instituted and given for 13 consecutive days in 1 grain doses, followed by salvarsan 0.6 Gm. and supplemented by three days of 1 grain each of emetin, a total of 16 grains of emetin and salvarsan 0.6 Gm.

During this course the stool contained motile amebae and cysts after the fifth day of emetin, and was negative for motile amebae or cysts after the ninth grain of emetin. There was considerable muscular weakness, especially in the lower extremities, during the administration of the emetin, which passed off entirely within a month of its discontinuance.

The subsequent history of the patient is as follows: Health perfect. Stool examinations negative for amebae or cysts on the 5th, 10th, 16th, 23rd, 28th, 35th, 45th, 64th, 110th, 208th, 388th and 418th day after treatment was stopped.

Case 2. Chronic type, 13 years duration, originating in Philippine Islands.

In this case an attempt was first made to eradicate the amebae with neosalvarsan alone. Four months prior to this the patient had received emetin hydrochloride as a therapeutic test, being given $3\frac{1}{2}$ grains over a period of seven days.

Twenty-four hours after the administration of the first 0.6 Gm. neosalvarsan the stool was free from motile amebae but contained cysts.

On the ninth day motile amebae and cysts were present.

On the tenth day neosalvarsan 0.9 Gm. was given.

The stool was negative for amebae and cysts on the second and fifth day after this injection, and on the eighth day neosalvarsan 0.9 Gm. was repeated.

On the fourth and eleventh days after the last injection cysts were demonstrable in the stools, and on the fifteenth day motile amebae were present.

Emetin hydrochloride and neosalvarsan were then administered, 19 grains of emetin and two doses of neosalvarsan (0.9 Gm. each) being given over a period of 23 days.

Following treatment the stool examination showed no amebae or cysts on the twelfth day, cysts on the twentieth day, and motile amebae on the twenty-fifth day.

Treatment was immediately resumed, emetin hy-

drochloride Gr. 1 being given for eleven consecutive days, followed by salvarsan 0.6 Gm. and one more dose of emetin Gr. 1 the next day, a total of 12 grains of emetin hydrochloride and 0.6 Gm. salvarsan.

During this course of treatment the stool was negative for amebae or cysts on the seventh day, that being the only stool examination made.

Following this course the stool was negative for amebae or cysts on the eighth day and contained motile amebae and cysts on the twelfth day.

Treatment was immediately resumed, salol coated ipecac Gr. 10, 30, 45 and 20, respectively, being given on four consecutive days.

Following this treatment the stool showed no amebae or cysts on the 8th, 14th, 22nd and 36th days. On the 56th day amebae and cysts were present.

Treatment was immediately resumed, beginning with neosalvarsan 0.6 Gm., followed by emetin Gr. 1 daily for four days, then a second neosalvarsan 0.6 Gm., followed by emetin Gr. $\frac{1}{2}$ daily for four days, and ending with a third neosalvarsan 0.6 Gm., a total of 6 grains of emetin and three doses of neosalvarsan, 0.6 Gm. each, during this course.

On the seventh day following, the stool was free of amebae or cysts, on the twentieth day cysts were present, and on the forty-eighth day motile amebae and cysts were demonstrated.

Treatment was soon resumed, and during a course of twenty days, 8 grains of emetin hydrochloride and 4 neosalvarsans (0.6 Gm. each) were given.

A month and a half later, when the stool was next examined, motile amebae were present.

A few weeks later a course of emetin bismuth iodide in keratin coated tablets was given, three 1-grain tablets being administered daily for fourteen consecutive days.

Twenty-eight days later the stool contained motile amebae.

A second attempt to administer this drug had to be abandoned after a few days on account of the severe vomiting produced.

No disagreeable symptoms resulted from the first course, when neosalvarsan alone was used. During the period when the courses of 19 grains and 12 grains of emetin were used and after the ipecac treatment, very severe prostration and marked muscular weakness were evident. Following the last 6-grain course of emetin there was no discomfort.

At present the general condition is excellent, much better than it was prior to the beginning of the first treatment.

Most of the treatment was carried on at the office, the patient being in the hospital during the course of emetin bismuth iodide.

This case has proved to be the most intractable to this method of treatment that I have thus far encountered, and had my observations been limited to it, the method doubtless would have been discarded.

Case 3. Acute type, originating in Central America. Four months pregnant. Eight to ten bowel movements daily; tormina and tenesmus; blood and mucus discharges.

Emetin hydrochloride in $\frac{1}{4}$ or $\frac{1}{2}$ grain doses was given daily for eleven days, during which time considerable amelioration of symptoms resulted. After an intermission of four days the dose was increased to $\frac{3}{4}$ or 1 grain daily for fifteen days, a total of 14 $\frac{1}{2}$ grains being given over a period of thirty days. During the height of the treatment there was slight dizziness, considerable muscular weakness in the lower extremities, and increased pulse rate.

The stool showed motile amebae after the administration of 4 grains of emetin, cysts after 9 $\frac{1}{2}$ grains had been taken, and was free of cysts two days after the end of the course, three cover-slip

preparations being examined. Eighteen days after the end of treatment cysts were demonstrated in the stool, and eight days later (twenty-six days after the termination of the emetin treatment) motile amebae were present in the stool. The patient's condition was very good.

Treatment was resumed, Gr. 1 emetin being given daily for nine days, followed by neosalvarsan 0.6 Gm.

The subsequent history is as follows: Health perfect. A normal full-term delivery. Stool examinations were negative for amebae or cysts on the 20th, 32nd, 49th, 85th and 196th day after stopping treatment.

Case 4. Chronic type, originating in California. Intermittent diarrhea and digestive disturbances.

Emetin hydrochloride was given daily for 17 days in 1-grain doses, a total of 17 grains, and two days later 0.4 Gm. salvarsan.

Motile amebae and cysts were present in the stool all through the emetin treatment, being demonstrated on the 6th, 10th and 15th day, and on the morning that the salvarsan was given.

The day following administration of salvarsan the examination of the stool was negative for amebae or cysts.

There was considerable muscular weakness in the lower extremities during the latter part of the treatment, which gradually cleared up and was practically gone within three weeks.

The subsequent history is as follows: Health greatly improved. All symptoms relieved except slight flatulence occasionally. Stool examinations were negative for amebae or cysts on the 1st, 5th, 9th, 12th, 26th, 35th, 49th and 61st day after discontinuance of treatment.

Case 5. Chronic type with constipation, originating in California.

Emetin hydrochloride was given Gr. 1 daily for seven days, followed by 20 grains of ipecac (salol coated) daily for two days.

Two doses of neosalvarsan 0.6 Gm. were given, one after the fourth dose of emetin and one the day following the last ipecac treatment.

The stool was negative for amebae or cysts at the end of the emetin treatment. There was very little prostration and muscular weakness resulting from the treatment, and the symptoms were practically all cleared up shortly afterward.

The subsequent history is as follows: Health greatly improved. The examinations of the stools were negative for amebae or cysts on the 15th, 22nd, 36th, 50th, 86th and 166th day after the termination of treatment.

Case 6. Subacute variety, originating in South America.

Emetin hydrochloride was given in 1-grain doses for eleven consecutive days, and on the following day 0.45 Gm. neosalvarsan was administered.

Following the treatment there was considerable muscular weakness, especially in the lower extremities, which lasted for several weeks.

Amebae were still present in the stool after the seventh and tenth doses of emetin had been given.

The subsequent history is as follows: Improvement was slow but definite, although recurrence resulted as noted below. Stool examinations were negative for amebae or cysts on the 6th and 12th days. Cysts were demonstrated on the 18th day. The stools were negative for amebae or cysts on four subsequent examinations, made on the 24th, 32nd, 45th and 107th day. On the 143rd day motile amebae and cysts were again present.

Case 7. Chronic type. Origin unknown.

Emetin hydrochloride in 1-grain doses was given daily for five days; when neosalvarsan 0.45 Gm. was administered followed by emetin for seven days, during which time 5 grains were given, a total of 10 grains of emetin.

On the day neosalvarsan was administered, when

5 grains of emetin had been taken, amebae and cysts were present in the stool.

Three days later the stool was negative for amebae or cysts. Very slight muscular weakness could be ascribed to the treatment.

Subsequent history: No improvement in patient's condition. Marked neurasthenia present. The stool examinations were negative for amebae or cysts on the 3rd, 10th, 20th, 31st, 55th, 80th, 101st, 128th and 252nd day after the last treatment.

Case 8. Subacute type, originating in California.

The patient received in all, over a period of two weeks, 9 grains of emetin, two neosalvarsan 0.6 Gm., and 30 grains of ipecac, salol coated. The treatment was well borne and produced very little prostration. Most of the symptoms were relieved during the course.

Subsequent history: Health greatly improved. Stool examinations negative for amebae or cysts on the 3rd, 12th, 19th, 26th, 39th, 53rd and 97th days after last treatment.

Case 9. Subacute type, originating in California.

During a period of eleven days the patient took in all 8 grains of emetin, one dose of 25 grains of ipecac, and two doses of neosalvarsan (0.6 Gm. each).

The treatment was well tolerated, only slight muscular weakness being complained of.

The subsequent history is as follows: General health good; practically all symptoms relieved. The stool examinations were negative for amebae or cysts on the 8th, 15th, 28th, 38th, 47th, 61st, 92d and 177th days after the end of treatment.

Case 10. Chronic type, originating in Central America. Child of 15.

Emetin hydrochloride Gr. 1/3 was given daily for four days, then Gr. 1/6 daily for six days. Alcresta ipecac tablets Gr. V were also used after the 8th day, two tablets being given twice daily for six days. The total amount of emetin given was 2 1/3 grains in ten days and 24 tablets of alcresta ipecac, the equivalent, as claimed by its manufacturers, of 240 grains of ipecac.

During this treatment motile amebae were always demonstrable in the stools.

Emetin hydrochloride was then given in doses of 2/3 grains daily for three days, with neosalvarsan 0.6 Gm. on the fourth day, and emetin 2/3 grains daily again for six more days, followed by a second dose of neosalvarsan 0.6 Gm.

During this second course of treatment 6 grains of emetin and two injections of neosalvarsan, 0.6 Gm. each, were administered over a period of eleven days. Practically no discomfort resulted from the treatment.

The stool was negative for amebae or cysts the day after the first neosalvarsan was given.

The subsequent history is as follows: Health improved. The stool examinations were negative for amebae or cysts on the 2d, 13th, 20th, 30th, 44th and 89th days after termination of treatment.

Case 11. Subacute type, originating in California.

Received 9 1/2 grains of emetin hydrochloride during ten days, followed by two days of ipecac Grs. 10 and 20 respectively.

At the end of treatment, and three days later, the stool was negative for amebae or cysts. On the fourth day after treatment amebae and cysts were demonstrated.

Alcresta ipecac tablets were then given: 3 on the first day, 9 on the second, 9 on the third, 6 on the fourth, and 3 tablets on the fifth day; a total of 30 tablets or, as claimed by the manufacturers, the equivalent of 300 grains of ipecac. The alcresta tablets had to be discontinued on account of the diarrhea, with tormina and tenesmus, which resulted.

Motile amebae were demonstrated in the stool on the 3d and on the last day of taking this preparation.

Emetin hydrochloride was then given in 1 grain doses daily for eight days, with neosalvarsan 0.6 Gm. on the second day while receiving emetin, and again on the day following the last emetin injection.

All symptoms were relieved within two or three days of beginning this last course of treatment. There was considerable muscular weakness resulting, lasting for several weeks.

The subsequent history is as follows: Considerable improvement in health. The stool was negative for amebae or cysts on the 14th, 23d, 25th, 50th, 77th, 79th, 161st and 341st days after treatment.

Case 12. Chronic type, originating in Mexico.

Two years and a half ago was given emetin hydrochloride Gr. 1/3 daily for seven days, then Gr. 1/3 every other day for ten days, a total of 4 grains during a period of seventeen days.

In the middle of this course, material obtained during a sigmoidoscopic examination was negative for amebae.

The patient was lost sight of for a year, and on returning with recurrence, was two months pregnant.

Emetin hydrochloride was given daily in 1 grain doses for three days, then neosalvarsan 0.6 Gm., then emetin Gr. 1 daily for two days, and Gr. 1/2 for two more days, concluding with a second dose of neosalvarsan 0.6 Gm. on the following day; a total of 6 grains of emetin and two 0.6 Gm. doses of neosalvarsan during this course.

Great improvement in the general condition resulted from the treatment, and practically no prostration.

No re-examination of the stool was made until the 27th day after the termination of treatment, when motile amebae and cysts were demonstrated.

Treatment was resumed, and during a period of five days, 5 1/2 grains of emetin hydrochloride and one neosalvarsan 0.6 Gm. were given.

Forty-four days later (the next examination made) amebae were present in the stool. Later on, when pregnancy was well advanced, a mild recurrence of symptoms was controlled by a course of emetin hydrochloride. Pregnancy went to full term with normal delivery. A few months later mild dysenteric symptoms recurred, and treatment is about to be resumed.

Case 13. Chronic type.

During a period of twelve days was given emetin hydrochloride Grs. 12 and 1 neosalvarsan 0.6 Gm.

The stools were negative for amebae or cysts on the 10th, 30th, 57th, 89th and 200th days after termination of treatment.

Case 14. Chronic type, originating in California.

During the course of ten days, 8 grains of emetin hydrochloride and 1 neosalvarsan 0.6 Gm. were given.

Great improvement in the patient's condition resulted and the stool was negative for amebae or cysts on six examinations extending over a period of 105 days.

Case 15. Chronic type, contracted in the Philippine Islands 13 years ago.

During a period of 14 days, 9 grains of emetin hydrochloride and 2 neosalvarsan (0.6 Gm. each) were given.

Very little improvement in the patient's condition resulted. Achylia gastrica was present.

The stools were negative for amebae or cysts on the 2d, 7th, 17th, 51st, 63d, 92d, 119th and 159th days following termination of treatment.

Case 16. Chronic type, contracted in California. During a course of 14 days, emetin hydrochloride Grs. 12, and 1 neosalvarsan 0.4 Gm., and 1 novarsenobenzol 0.6 Gm. were given.

Great improvement in condition resulted. The stools were negative for amebae or cysts on four examinations over a period of sixty days.

Case 17. Chronic type, contracted in California. During a course of treatment lasting twelve days, 10 grains of emetin hydrochloride and 2 doses of novarsenobenzol (0.6 Gm. each) were given.

Marked improvement in condition resulted, and the stools were negative on four re-examinations over a period of sixty days.

Case 18. Chronic type, contracted in Java.

During fifteen days' treatment, $11\frac{1}{2}$ grains of emetin hydrochloride and 1 neosalvarsan, 0.6 Gm., were given.

The stools were negative on seven re-examinations over a period of eighty days.

Case 19. Chronic type, contracted in Central America.

During a period of fourteen days, 7 grains of emetin hydrochloride and 2 doses of novarsenobenzol (0.5 Gm. each) were given.

The stool was negative on four re-examinations over a period of sixty days.

Case 20. Chronic type, contracted in Philippines 10 years ago.

During a 12 days' course, emetin hydrochloride Grs. 11 and 1 neosalvarsan 0.6 Gm. were given.

The stool showed amebae 11 days later.

Twenty-three days after the termination of the first course of treatment a second course was given, which lasted 13 days, during which 9 grains of emetin hydrochloride and 1 novarsenobenzol 0.6 Gm. and 1 neosalvarsan 0.6 Gm. were given.

On the tenth day following the end of treatment the stool was negative for amebae or cysts.

On the 19th and 31st days cysts were present. At the next examination, two months later, motile amebae and cysts were demonstrated.

Case 21. Chronic type, contracted in Guam.

The patient, a girl five years of age, was given 3 grains of emetin hydrochloride and 1 novarsenobenzol 0.2 Gm. during a period of thirteen days.

Only three re-examinations have been made over a period of sixty days, all being negative.

SUMMARY.

Results of Combined Treatment.

Case No.	Duration of treatment, No. days.	Total amt. drugs used during course of treatment.				Stool examinations subsequent to treatment		Results	Remarks
		Emetin hydrochloride, grains.	Neosalvarsan, Gms.	Salvarsan, Gms.	Novarsenobenzol, Gms.	No.	Extending over No. days.		
1	19	14	0.6			12	418		
2	17	16		0.6					
3	23	19	1.8					Uncured	4 mos. pregnant
4	13	12		0.6					
5	11	8	1.8						
6	20	8	2.4						
7	10	9	0.6			5	196		
8									
9	19	17		0.4		8	61		
10	11	7	1.2			6	166		
11	12	11	0.45			9	252	Uncured	
12	13	10	0.45			7	97		
13	14	9	1.2			8	177		
14	11	8	1.2			6	89		15 yrs. age
15	10	8	1.2			8	341	Uncured	Pregnant
16	9	6	1.2						
17	5	5½	0.6			5	200		
18	12	12	0.6			6	105		
19	10	8	0.6			8	159		
20	14	9	1.2			0.6	4	60	
21	14	12	0.4			1.2	4	60	
22	12	10				7	80		
23	15	11½	0.6			4	60		
24	14	7			1.0				
25	12	11	0.6			3	60	Uncured	5 yrs. age
26	13	9	0.6						
27	13	3			0.2				

Note:—All cured except those marked uncured.

Total number of cases treated..... 21
Total number of cases cured..... 17
Percentage of cures..... 80

If cases Nos. 6, 12 and 20, which have received only one or two courses of combined emetin and arsenic treatment, are omitted from these figures as incompletely treated, it would materially alter the percentage of cures shown:

Total number of cases treated (to completion) 18
Total number of cases cured..... 17
Percentage of cures..... 94

Number of cases cured in one course of emetin and arsenic treatment..... 16

Number of cases cured in two courses of emetin and arsenic treatment..... 1

Total cured..... 17

Number of cases uncured after 1 course of treatment..... 1

Number of cases uncured after 2 courses of treatment..... 2

Number of cases uncured after 4 courses of treatment..... 1

Total uncured..... 4

Average duration of course of treatment.. 13 days

Average number stools re-examined after treatment..... 6.5

Average time under observation after treatment..... 151 days

At the present time I am using less emetin and more neosalvarsan; the emetin is discontinued if symptoms of muscular weakness supervene, and even if well tolerated not over 10 grains are given in a course; the neosalvarsan is administered after four or five doses of emetin have been given and is repeated at or near the end of the emetin course. Following the treatment the stool is carefully examined at regular intervals, and immediately upon the reappearance of cysts or amebae the course of treatment is repeated.

No ill effects from the use of neosalvarsan or novarsenobenzol have been observed in any case, and the results following their use seem to be as good as with salvarsan, which produced a much greater reaction.

CONCLUSIONS.

It would appear from my observations that a radical cure of amebiasis can be effected but rarely with emetin hydrochloride alone, which is the consensus of opinion at the present time. From a very limited number of observations, the same would seem to be the case with salvarsan and neosalvarsan used alone.

The combined use of emetin hydrochloride and salvarsan, neosalvarsan, or novarsenobenzol may be expected to produce a radical cure in a large proportion of cases if the arsenic compound is injected while the patient is well under the influence of the emetin. The treatment as carried out by this method is far more rapid, less severe, and apparently much more efficacious than with most of the old methods of treatment.

240 Stockton Street.

ACUTE GASTRO-DUODENAL PERFORATIONS.

By EDMUND BUTLER, M. D., San Francisco.

(Continued from April Journal 1918.)

The early cases do not always require drainage. It is safer to use a soft rubber tube reaching into the right kidney pouch or the left subphrenic space.

As a rule, subphrenic abscesses are the complication of chronic perforating ulcers or of cases of acute perforation which have been followed by a diffuse suppurative peritonitis. In cases of well advanced peritonitis, suprapubic drainage is indicated. In closing the abdominal wall, plain catgut in the peritoneum and figure-of-eight sutures of silk worm catgut, including the fascia, fat and skin are most often used.

The after treatment is simple. Fowler position, Murphy proctoclysis, with 5 per cent. solution of glucose and 5 per cent. solution of bicarbonate of soda, by the Weeks method, is continued for three days. Small quantities of water are given by mouth every hour. Heroin Gr. 1/24 hypodermically is given every three hours, if necessary, to comfort the patient.

Tea, broth, fruit juice, peptonized milk and malted milk, are given after the fourth or fifth day, and after two weeks, treat as an uncomplicated ulcer case. Will Mayo states that "ulcer cases that have been operated upon require regulation of diet for a long time following the operation."

Is a gastroenterostomy indicated? If, after the ulcer is closed, there is apparent obstruction and the patient is in condition to stand the added operative procedure, it should be done, but as a rule it is not necessary. Eliot states, in his article in the American Journal of Surgery, 1908, that "the increase in mortality, if routine gastrojejunostomy is done, is greater than the number of cases that will ultimately require gastrojejunostomy." "Perforations without previous history of indigestion get along better without gastrojejunostomy," Will Mayo states.

Moynihan maintains, "in the first place, all cases where the ulcer is placed at or near the pylorus, in a position where the subsequent contraction in healing is likely to cause stenosis, gastrojejunostomy should be done. In the second place, when placed near the lesser curvature or away from the pylorus, excision or infolding is sufficient to give complete relief."

Eliot later states, "after consultation of all accessible published autopsy records, I find that not a fatality has been found which could in any way be ascribed to the omission of a gastroenterostomy."

Lockwood, in his book "Diseases of the Stomach," says that "most perforations are in acute ulcers and heal readily without gastroenterostomy."

I greatly appreciate the opportunity which has been extended to me by Dr. Alanson Weeks, the former Chief Surgeon, and Dr. Saxton Pope, the present Chief Surgeon of the San Francisco Mu-

nicipal Emergency Hospitals, of having operated upon the following cases of ruptured duodenal and gastric ulcers:

Case 1. J. L., age 24, male; occupation, stevedore; March 31, 1916, 3:55 p. m.

Present Trouble.—Has been drinking heavily for fourteen days. Last ten days, gnawing pains in epigastric region. Had a sudden pain in epigastric region at 6 p. m. yesterday. The pain has been continuous since, and generalized over the entire abdomen during the last twelve hours. Vomited; no blood in vomitus. Bowels moved this morning.

Examination.—Pulse 104, temperature 101. White blood count 18,000. Abdomen slightly distended. Generalized tenderness. Greatest tenderness in epigastric region and along ascending colon. Moderate degree of general rigidity. Peristalsis present.

Diagnosis.—Ruptured gastric ulcer.

Operation.—Five p. m. Ether anesthetic. Right rectus epigastric incision. Liver greatly enlarged. Considerable amount of free, turbid fluid. Many flakes of fibrin. Perforation in anterior stomach wall, near the pylorus. Stomach wall shows marked inflammatory changes in region of ulcer. Perforation closed with double row of catgut sutures. Tag of omentum tacked over suture line. Tube drain down to right subphrenic space.

Result.—Recovery.

Case 2. W. K., age 30, male; occupation, stevedore; April 27, 1917, 12:20 a. m.

Present Trouble.—Seized with sudden pain in region of epigastrium while straining at stool at 8:00 p. m. on April 26, 1917. Vomited one hour later. Pain is beginning to be diffuse. No indigestion.

Examination.—Patient suffering great pain. Thoracic respiration. Abdomen retracted, rigid and board-like. Greatest tenderness in right upper quadrant. Pulse, 72; temperature, 99.

Diagnosis.—Ruptured gastric ulcer.

Operation.—One forty a. m. Middle epigastric incision. Moderate amount of bile-tinged fluid, containing fibrin flakes, found. Small perforation anterior surface of distal part of first segment of duodenum, about the size of a white bean. Slight amount of induration around perforation. Perforation closed with double row of catgut sutures. Omentum tacked over suture line. Rubber tube drain inserted to right kidney pouch.

Result.—Recovery.

Case 3. V. B., age 40, male; occupation, tailor; September 4, 1917, 6:20 p. m.

Present Trouble.—Was taken with a severe pain in the pit of the stomach, about 4 p. m. Pain continuous since. Hot water, whiskey and bitters did not relieve pain. Vomiting followed the above medication. Had a somewhat similar attack three years ago, when he was confined to his bed four days. Patient has had indigestion for some time.

Examination.—Thighs flexed. Abdomen tense—board-like. Marked tenderness in epigastric region. No tenderness over appendix. Breathing thoracic in type. Pupils equal and react. Pulse, 68; temperature, 98; blood count, 21,600.

Diagnosis.—Probable ruptured gastric ulcer.

Operation.—Eight forty-five p. m. Epigastric, midline incision. Small amount of gas and stomach contents found in upper abdomen. Perforated ulcer size of lead pencil anterior wall of the stomach, one centimeter from the pylorus. Perforation closed with purse-string suture of catgut, reinforced with several Lembert sutures of catgut. Tube drain down to right subphrenic space.

Result.—Recovery.

Case 4. W. S., age 42, male; occupation, unknown; February 28, 1915, 4:30 p. m.

Present Trouble.—Has been having slight pain in epigastric region for five or six days. Seized with sudden pain, which doubled patient up, at

8 a. m. today. Similar attack eleven years ago. No history of pain after meals. No vomiting of blood. No tarry stools. Vomited bile. No history of jaundice.

Examination.—Entire abdomen tender and rigid, and slightly distended. Pulse, 110; temperature, 99 (rectal); blood count, 6200.

Diagnosis.—Perforated gastric ulcer.

Operation.—Nine p. m. Midline epigastric incision. Abdomen found to contain great amounts of bile-tinged, mucilaginous, flaky fluid. Duodenum adherent to inferior surface of the liver. Adhesions separated and perforation the size of the little finger, with bile pouring from it, came into view. Perforation closed with double row of interrupted catgut sutures. Omentum tacked over suture line. Drainage, suprapubic and both groins.

Result.—Died March 2, 1915, at 12 p. m.

Case 5. R. F., age 50, male; occupation, unknown; August 20, 1915, 3 p. m.

Present Trouble.—Dull, aching pain over upper part of abdomen. Constipated. Bowels have not moved for two days. Pain began last evening, August 19th, about 7 p. m. Pain is not sharp. Patient has had stomach trouble for some time. Vomited this afternoon.

Examination.—Patient sober. Abdomen distended and tense. General rigidity. Pain on pressure over all parts of the abdomen, but most marked over the gastric region. Face pale and drawn. Pulse, 130; temperature 98 (F.).

Diagnosis.—Intestinal perforations.

Operation.—Five p. m., August 20, 1917. Midline epigastric incision. Preperitoneal fat found to be edematous. On opening peritoneum, considerable quantity of gas escaped. Peritoneal cavity filled with bile-stained, mucilaginous fluid. Anterior surface of stomach and surface of intestines covered with fibrin. Perforation the size of a red bean found in the first portion of the duodenum. Omentum and fat in the region of the perforation studded with small, white areas of pancreatic digestion. Perforation closed with double row of catgut sutures. Suprapubic drainage, and drainage through wound.

Result.—Died August 21, 1915, at 7 a. m.

Case 6. L. C., age 55, male; occupation, carpenter; July 5, 1917, 8 p. m.

Present Trouble.—About three hours ago was seized with sudden pain in the pit of the stomach. Pain similar to this one year ago, the attack lasting one week. Abdomen was tender for four months following the attack. Vomited. Pain at present extends across the upper abdomen. Has had distress after meals for months.

Examination.—Upper abdomen rigid, tender, board-like and retracted. Costal type of breathing. Pulse, 88; temperature, 100.2; blood count, 24,800.

Diagnosis.—Perforated gastric ulcer.

Operation.—Nine p. m.; midline epigastric incision. Small amount of free fluid found; also large, indurated, mass, about the size of a doughnut, in the region of the first portion of the duodenum and pylorus (possibly malignant). Corresponding to center of doughnut, perforation the size of the index finger. Pylorus apparently completely constricted by the mass and sutures. Posterior gastrojejunostomy done. Drainage inserted to right kidney pouch.

Result.—Recovery.

Discussion.

Dr. Saxton Pope: The Emergency Hospital has had a good opportunity to collect these cases. We have 18 recorded. The work was done by Dr. Weeks, Dr. Harrison and Dr. Butler. We are somewhat favored, because the patient is taken with severe pain and is rushed to us as rapidly as possible. Dr. Butler has reported six of these. In the other 12 cases there has been a mortality

of about 25 per cent. Apparently this mortality has been in direct proportion to the time that has elapsed between perforation and the time of operation. The diagnosis of this condition is getting to be a common occurrence at the Emergency Hospital and we are ever on the lookout for it. The doctor who has not an emergency training, and who sees few of these cases, is apt to waste time in making a diagnosis. At the Emergency Hospital there is no time for the finer technicalities, but we are very acute on clinical phenomena.

The majority of these perforations occur near the pylorus. One I happened to have recently, was an immense ulcer which perforated near the cardia. This man had tabes dorsalis as well, and it was a nice question in diagnostics—whether we were dealing with a crisis or a perforation.

Dr. Butler quoted Dr. Deaver as saying that 90 per cent. of all perforations die if not treated surgically. This can hardly be accurate, because we all see cases that have come to operation later, where either the perforation is closed by massive adhesions, or a condition described by C. M. Cooper as pseudo-tuberculous peritonitis, or foreign body peritonitis exists, showing that a patient may survive a perforation. You will notice that of the cases reported, three of the men had attacks before.

I have seen only five cases of acute perforation ulcers, but two of these five died. That again was a matter of time. One woman was held three days before the diagnosis was made. The other, a man, was so full of barium sulphate from the X-ray that I imagined his recovery was unfavorably influenced by this substance. Two of my cases I washed out. It seems to me that if a man has onions, beans and barium floating around in his stomach it is a good thing to wash him out; otherwise a foreign body peritonitis is more apt to supervene.

Dr. Butler is to be congratulated. I do not think many surgeons as young as he, have had even six cases of perforating gastric and duodenal ulcers.

Dr. J. Rosenstirn: There is little to add to what the two previous speakers have remarked. We see in Mount Zion Hospital quite a number of perforated ulcers. The bulk of the material we have there is not very stoical; they are very apt to resent pain and they are brought to the hospital early. I think I can safely say I have twelve or fifteen cases that have recovered amongst perhaps twenty-five, I believe, that I have operated upon myself. One of the two fatal cases of Dr. Butler's showed low resistance, with a leucocyte count of only 6200, the other showed a pulse of 130 with a temperature of 98, also indicative of low resistance and shock; so this serves to explain the bad results.

I also differ from Dr. Butler in his general condemnation of lavage. If there has been an escape of stomach or intestinal contents into the abdomen, I try to wall off the soiled parts as much as possible and wash out the abdominal cavity. I believe a warm saline solution, introduced gently into the abdominal cavity and led off by good sized drainage tubes, is not injurious.

My statistics are not as favorable as these, probably because they partly date from an earlier period, when the technic was not so good as in recent years, and I congratulate Dr. Butler that in his first efforts in this rather difficult field of operation, he has had such good results.

Dr. Butler, closing discussion: In a ruptured gastric or duodenal ulcer that had gone ten hours, you would have shock. In the first three or four hours, when there is a good chance for the man's recovery, there is no shock. If you have shock, the man is so much worse off. The fourth and fifth cases were in shock, which you would hardly be able to differentiate from acute surgical shock.

THE CONTROL OF EPIDEMIC MENINGITIS, WITH SOME OBSERVATIONS MADE DURING AN EPIDEMIC AT THE UNITED STATES NAVAL TRAINING STATION, SAN DIEGO, CALIFORNIA.*

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Before taking up the methods for the control of meningitis, it will be advisable to consider the various types of the disease. The division into sporadic and epidemic meningitis may be arbitrary and does not mean that the two are different clinically, for the epidemics of the disease very probably arise from the sporadic cases. For this reason the terms endemic and epidemic may more correctly express the difference. However, the distinction is of practical value in designating the forms of the disease to which different methods of control are adaptable.

The disease may vary in intensity from the abortive to the fulminating type in which death may ensue in 24-48 hours. The diagnosis of the abortive and atypical cases is of the greatest importance in controlling the spread of the disease. Hochhaus¹ reported an epidemic of 32 cases, 16, or 50%, of which were of the abortive type. Several epidemics with a large percentage of atypical cases have been reported in Denmark. Lundie, Thomas, and Fleming,² English investigators, state that the disease often goes no further than the catarrhal stage. These cases may show only headache, slight or no meningeal irritation, and slight rise in pulse rate and temperature, all of which may clear up in 24-48 hours. Cuplin³ states that practically all of the abortive cases, if watched carefully, show some lowering of the pulse rate with slight dizziness or other symptom of meningeal involvement some time within two to seven days after the onset. These symptoms may come on after all others have cleared up and the patient feels perfectly well. A case of this type was seen by Assistant Surgeon Searles and myself on the U. S. S. San Diego. This man, a Filipino, had a severe headache, a slight rise in temperature, a slight increase in pulse rate, and markedly positive Kernig's and Brudzinski's signs. Doctor Searles and I felt that the case was one of meningitis and sent the man to the isolation hospital. The next morning the physician in charge of the patient informed me that the man seemed perfectly normal and that he had not felt justified in doing a lumbar puncture. However, the patient was

kept in the hospital and several days later it appeared as if the disease was again going to develop. This condition soon cleared up and there was no further trouble.

Lundie, Thomas, and Fleming² hold that there are always three stages to the disease, the catarrhal, septicemic, and meningeal. Many observers do not agree that the disease always begins as a catarrhal inflammation of the naso-pharynx.

It must be remembered that in a very high percentage of cases the meningococcus is not demonstrable in the naso-pharyngeal secretions or in the spinal fluid. Halahan⁴ reported a series of 19 cases, 13 of which gave repeated negative spinal fluids. However, it is usually found in one or the other of these locations, and has also been isolated from the blood, urine, and petechial spots in the skin. Of the five localizations, the one of greatest importance from the standpoint of control is the naso-pharynx, for as Fitzgerald⁵ says, "The epidemic is one of meningococci in the naso-pharynx and not one of the epi-phenomenon, cerebro-spinal fever."

Since the identification of the meningococcus by Weichselbaum in 1887 there has been a great deal of controversy as to its true relationship to the disease. The evidence that it is the causative agent is conclusive and careful observations have shown that the organisms confused with it have been due to contaminations and faulty technic. Recently, however, Hort, Lakin, and Benians⁶ have reported the discovery of a filterable virus in the spinal fluid of meningitic patients, which they feel is in some way concerned with the disease. Their observations so far lack confirmation.

As the meningococcus rapidly dies when outside the human body and requires a special media for its cultivation, it is obvious that it is spread only by direct contact with a person carrying the organism or with some article recently contaminated with fresh secretions from such a person. Flexner⁷ states that "The meningococcus enters and leaves the body by way of the secretions of the naso-pharyngeal membrane," and "no other avenue of entrance or exit is known." While this is undoubtedly true in the great majority of cases, the fact that the meningococcus has been found in the urine⁸ makes it, as well as the naso-pharyngeal secretions, a possible factor in the spread of the disease. This was recognized by Nicholls,⁹ who insisted on the disinfection of the urine of all cases and carriers.

Whatever the portal of entry we do know that the organism is found in the naso-pharynx of healthy persons as well as of those ill with the disease. The prevalence of carriers is so extensive that Arkwright¹⁰ says, "the statement that cases of meningitis occur when and where carriers are numerous, is a more correct way of stating facts than by saying that many carriers occur in the neighborhood of cases of meningitis."

The percentages of apparently healthy carriers of meningococci found by different investigators vary almost as much as those of diphtheria carriers.

* Read before the Conference of California Health Officers, Santa Rosa, 1917.

Frost¹¹ tables the results of 25 investigations by different men showing percentages of positives running from 0.0% to 70%. These results were found in many different groups of persons, the highest, 70%, being obtained by Osterman from 24 persons who were members of families in which there were cases of meningitis. Most observations among persons not in contact with cases of meningitis show about 2% to be carriers. However, by very careful examinations spread over a considerable period of time Eastwood¹² found 10% and Scott¹³ 13.7% of patients at the out patient departments of two English hospitals to be meningococcus carriers. None of these persons had, so far as could be ascertained, been in contact with cases of the disease. One group of investigators hold that all carriers show some catarrhal inflammation of the naso-pharynx, but many others have not found this constant. In the investigation of 1583 naval recruits at the San Diego Naval Training Station during an epidemic of meningitis, we found 78 or 4.9% carriers. A large proportion of the positive cultures were obtained from men with no catarrhal inflammation. We found that the hospital corps men who had been in contact with the quarantined carriers gave the highest number of positives, 9.6% of these men proving to be carriers.

The identification of the meningococci found in the naso-pharynx with those found in the cerebro-spinal fluid has been established microscopically, culturally, serologically, and by fermentation tests. Eastwood¹² concludes that microscopical, cultural, and fermentation tests are sufficient to identify an organism as a meningococcus and to warrant holding the person harboring it as a carrier. Other investigators place more reliance on agglutination tests.

Normal carriers like normal diphtheria carriers can only be detected by bacteriological examination. This examination is complicated by the presence of many Gram negative diplococci in the naso-pharynx other than meningococci and which closely resemble it culturally. It therefore becomes necessary to plant suspicious colonies on sugar media for fermentation tests and also, if possible, to test them serologically. Krumwiede¹⁴ has recently reported a microscopical slide agglutination test that holds great promise for rapid diagnosis. Our results at San Diego were based on microscopical, cultural, and fermentation reactions as we had no facilities for doing agglutination tests. We found sheep-serum-dextrose-agar to be an excellent medium for primary growth and used sheep-serum-dextrose-agar and acitic-fluid agar and dextrose, maltose, levulose and galactose, with Andrad's indicator for the fermentation reactions.

The period during which meningococci are present in the naso-pharynx of carriers varies greatly, some persons carrying as long as 8 to 9 months. These instances fortunately are rare, the majority of carriers becoming free of the organism within the course of a week or two.

The problem of clearing up the carriers is one of great importance. Many different procedures have been suggested. At San Diego a 2% solu-

tion of argyrol was used by means of a post-pharyngeal spray. At the Goat Island Station Minaker¹⁵ used a ¼% solution of iodine in 50% alcohol applied to the naso-pharynx by swabs. Various other solutions have been used such as iodinated glycerine, eucalyptus oil, etc. Dunham and Dakin¹⁶ felt that the use of dichloramine-T as a spray would prove of value. Investigations with the above solutions and many others, as well as treatment with vaccines and insufflations of dried immune serum have shown them all to be of little or no value in shortening the carrier period. A method used by Gordon¹⁷ gives great promise of excellent results. The carriers were placed in a room at a temperature of 77-85° F. in which the air was kept at the saturation point. One litre of a 2% solution of chloramine was sprayed into this room in the course of 15 to 20 minutes by means of a spray which divided it very finely. By this method they were able to clear up carriers with one or two treatments of about 20 minutes each, and plates of staphylococcus exposed to this atmosphere for 10 minutes were completely sterilized. When a 1.2% zinc sulphate solution was used instead of the chloramine the results were not so satisfactory. The same method had been used by Kuster¹⁸ in treating carriers except that he used Sano's fluid, the active principle of which, like chloramine, is a compound of hypochlorous acid.

The conditions which seem to favor the spread of the organism are overcrowding, poor ventilation, high temperature and high saturation of the atmosphere. It is readily seen how under such conditions the organism is more easily transferred from one person to another. Not only is the transfer made more easily but once the organism is implanted on the mucous membrane of the naso-pharynx its growth is assured, as these same conditions tend to local congestion and excessive secretion. After the organism is present in the naso-pharynx the condition of the carrier seems to determine whether or not the infection will become general. Lowered resistance due to fatigue, chilling, etc., or local inflammatory conditions of the mucous membrane seem to play an important part in the development of the disease. That carriers do not develop the disease because of a specific immunity is disproved by the fact that a susceptible individual may have the organism in his naso-pharynx and yet not develop the disease until some months later.

Methods of controlling meningitis may be taken up from two standpoints, the prevention of the spread of the infection and the reduction of mortality among those in whom the infection has developed. The public health authorities can do much to lower the mortality from this disease by providing expert diagnosticians and bacteriologists to assist in diagnosing atypical and abortive cases. Physicians should be made to understand that early diagnosis and early serum treatment are the only ways by which the patient's chance for recovery can be improved. Flexner⁷ tables several series of cases treated at different times showing that the mortality in cases treated before the third

day varied from 7.1% to 18.8%, while in cases treated after the seventh day it was from 23.5% to 50%. This shows the absolute necessity of early serum treatment. In the San Diego epidemic of 16 cases there was only one death, a mortality of 6.25%. This low rate was undoubtedly due to the early diagnosis and injection of serum. The only death was that of a patient with the fulminating type of the disease who was picked up unconscious and did not respond to serum treatment.

The prevention of the spread of the infection may be taken up under several headings, first, the improvement of hygienic and sanitary conditions, second, prophylactic inoculation, and third, the detection and control of carriers.

As stated above, overcrowding and poor ventilation are apparently great factors in the spread of the infection and for this reason these conditions should be remedied immediately on the appearance of the disease. If in a military camp, the men should be segregated into small units and encouraged to sleep in the open if possible. It is interesting to note that during the months of June and July, 16 cases of meningitis developed at the San Diego training station, while only 3 appeared at the Goat Island station, the focus of the infection and from where all the men at San Diego had recently come. This was apparently due to the fact that at San Diego the men were housed in poorly ventilated buildings after close association in crowded sleeping cars on the trip down. Besides improving the conditions under which the men live, it is advisable to see that the new recruits, unaccustomed as they usually are to military life, should not be subjected to over-fatigue, chilling, etc., until they become hardened.

At San Diego we felt that the breaking of the men into small units and the improvement of the housing conditions, carrying out the recommendations of Senior Surgeon Williams, U. S. P. H. S., and Medical Inspector Baker, U. S. N., had more to do with terminating the epidemic than the bacteriological survey of the men. In fact the epidemic practically ended a week before the survey was started. We do feel, however, that the bacteriological examination was justified in that by detecting and treating the carriers trouble may have been avoided for the future should these same men be put again under adverse conditions.

So far prophylactic inoculation against meningitis has not been particularly promising. It has, however, been used by several investigators, among whom are Sophian and Black,¹⁹ and Chalmers and O'Farrell,²⁰ who feel that it holds some hope.

As stated before, carriers can only be detected by bacteriological examination and the finding of meningococci in the naso-pharynx. Undoubtedly the ideal method of control would be to examine all persons in a community in which meningitis had appeared and isolate all carriers until free from the organism. This is obviously impossible outside of an institution, military or industrial camp, and even in such places the value of the procedure is questionable if the disease is at all widespread. In the first place the examination of

a large number of persons is necessarily time consuming and unless it can be completed in the course of 5 to 7 days the number of reinfections will be so great as to make the work valueless. After carefully checking the work in the military laboratories in England it has been estimated that in order to examine 100 men daily a force consisting of two bacteriologists specially trained in meningitis with two trained assistants and all of the media supplied from a base depot would be required. Therefore, such a procedure is impracticable in large bodies of men or in a community.

Another method of finding the carriers is to examine all contacts with a case of meningitis. In a community this would consist in the examination of the members of a household in which the disease had appeared. In an institution or camp the examination of persons sleeping in the same room and eating on either side of the patient, and if in a military organization possibly the members in the patient's squad. Even the value of this limited procedure depends on the carrier rate among non-contacts. If this is high then the isolation and control of the contact carriers will have little effect in preventing the spread of the disease. It is possible, however, that the contact carriers, like the pneumococcus contact carriers, may harbor more virulent organisms than the non-contacts, and for this reason their control may be of more importance.

A third compromise procedure followed by Flack²¹ in an epidemic in a British military camp consists in the examination of all immediate contacts with a case of the disease, then the examination of all contacts with the positive carriers, and so on, thus rapidly detecting a large number of carriers in a comparatively short space of time. As the time element is of the greatest importance in controlling the spread of the disease this procedure of Flack's gives promise of better results than any other method, and while meningitis was not eradicated at this station the number of cases was greatly reduced and the disease brought under control in a very short time.

Still a fourth procedure that might prove of value in a camp is the systematic examination of the force at a time when the case and carrier rate is low as it usually is during the summer months. This would give more time for a careful search for the carriers and if combined with Flack's procedure should prove very effective.

The only procedure applicable to the civil population is the detection of the contact carriers. In order to control the value of this, examinations should be made of groups of non-contacts, and if the carrier rate runs high among such persons it is useless to try and control the spread of the disease by any known method. This does not mean, however, that persons ill with the disease and carriers should be allowed to spread the infection broadcast. All such individuals should be instructed to destroy or disinfect all naso-pharyngeal discharges, should be warned of the danger of coughing and sneezing, and in the case of persons ill with the disease all body discharges should be disinfected.

Regarding the advisability of the wholesale culturing and isolating of carriers, I would like to call your attention to the statements of several investigators. Cleland²² says, "To sum up the position of affairs from this résumé, I am inclined to consider that measures taken to detect and isolate carriers during an epidemic are little likely to decrease to any recognizable extent the incidence of the disease." Armstrong²³ writes, "If carriers are as numerous among the civil population as these facts seem to indicate, the value of stringent isolation of contacts is evidently much depreciated and it becomes questionable whether health authorities would be warranted in enforcing it as a routine measure in ordinary civil populations." Frost¹¹ speaking of the value of quarantine, says, "By complete isolation of all the associates of every recognized case more might perhaps be accomplished; but rigid quarantine is a serious matter, justified only by a reasonable hope of proportionate results; and considering that the most prompt and rigid isolation of all immediate associates of every recognized case would still leave at large a very considerable number of carriers, the rigid quarantine of either houses or communities on account of cerebro-spinal meningitis seems ordinarily unjustified," and "The most recent bacteriologic studies, as well as past experience, indicate that cerebro-spinal meningitis, when once it has become epidemic, is not controllable by any known means of practical application."

Summing up the methods of control we find that they consist, first, in the early diagnosis and treatment of cases in order to lower the mortality, and second, in the prevention of the spread of the infection by cutting down the chances of contact, by improving housing conditions and ventilation, by not inviting the infection through general or local lowering of resistance, by the detection and control of carriers wherever practicable, using in each individual instance the method most suitable under the circumstances, and possible by the use of a prophylactic vaccine.

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THE TREATMENT OF WARTS.

By DOUGLASS W. MONTGOMERY, M. D., San Francisco, and GEORGE D. CULVER, M. D., San Francisco.

Verruca may give rise to infinite annoyance, and may be exasperatingly pertinacious and recurrent. The situation of the growth is of the greatest importance both in regard to the symptoms evoked, the disability involved and the steps to be taken in treatment.

VERRUCAE OF THE SCALP.

Verruca of the scalp, for instance, because the comb catches in it, continually gives rise to slight hemorrhages, which glue the hairs together disagreeably. The little wounds also facilitate pyogenic infections, which may spread over the scalp, causing alarm because of their extent, and because of the posterior cervical lymphatic enlargements which they may occasion.

Verrucae in this situation are easy to eradicate by the curet. After closely clipping away the hairs over the small area involved, the nose of the curet is firmly pressed against the base of the growth, which readily scrapes off, leaving a freely bleeding surface level with the scalp. The bleeding is easily stopped with trichloracetic acid, made fluid by adding a drop of water to a few crystals in a watch glass. Immediately after applying this acid, care should be taken to sop the surface well with boric acid solution, so as to prevent the trichloracetic acid from acting too deeply.

Another way of removing warts from the scalp is by the high frequency spark. In a very few seconds the verruca is battered down into a gray, greasy mass, which may be pushed off with the nail, leaving a smooth surface. I do not know of warts in any other situation acting like this toward the high frequency spark, and it must be due to the soft epithelial covering, acting as a good conductor. Pusey, for instance, has shown that the action of the high frequency current on warts in other situations may be facilitated by softening the epithelium with liquor potassae. It is not advisable to remove warts from the scalp by either X-rays or radium for fear of causing baldness.

WARTS ON THE EDGE OF THE EYELIDS.

Warts on the edges of the lids had better be taken care of by the oculist. In elderly people, with a seborrhoeic skin, in whom they are most apt to occur, their removal is of importance as they may undergo malignant degeneration.

WARTS ABOUT OR UNDER THE NAILS.

Warts about the nail, because of the depth of the nailfold and the additional depth of the lesions, are deeply countersunk in the tissues. Furthermore, the obstacle of the nail itself, and the tenderness of the region involved, offer special difficulties in treatment. In addition to this, when tampered with, warts in this situation are especially liable to pyogenic infection, frequently implicating the whole extremity. Even spontaneously this infection may occur from the irritation and wounding caused by the edge of the nail. Fear of spreading the infection may also deter from

performing evulsion of the nail, and so clearing the surgical field.

The treatment with radium here shows at its best. It is easy of application. It requires no preliminary treatment or evulsion of the nail, and therefore, gives rise to no additional risk of infection. It does give rise to some reaction, which, for a time, makes the radiated area very tender. After the subsidence of the reaction, however, the lesion can be counted on to disappear.

Warts in the nail folds, and under the free edge of the nails, are sometimes so thickly aggregated as to present a continuous, thickened, dirty-colored, rough surface, which may easily be mistaken for an eczema. Examination with a low power, six diameter pocket lens will dissociate the lesions and clear up the diagnosis.

Under the usual form of treatment this condition is one of the most exasperating. The first measure to be taken is to soften the horny covering, which may be accomplished with a strong salicylic acid ointment (12%), spread on cloth, applied, and covered with a rubber fingerstall. Much may also be done with a watery solution of boric acid, applied on cloth and also covered with a rubber fingerstall. Under these, the epidermis wrinkles, softens and becomes dead white, and may be removed easily with a curet, exposing the red papillary growth beneath, which also should be curetted and treated with trichloroacetic acid as previously indicated. If radium or the X-rays are not obtainable and there is no time to employ salicylic acid, a wart may be anesthetized with novocain and adrenalin, curetted, and the base treated with trichloroacetic acid, taking care, however, to apply quickly a moist compress to mitigate the excessive action of the acid.

A remarkable feature of warts about the nails or anywhere on the digits, whether of the dorsal or volar surface, is the depth of the lesion as ascertained by curetting.

Some men still employ nitric acid in the treatment of warts, running the risk of producing keloidal scars.

X-rays, employed by an expert, constitute an excellent mode of treatment. Radium is easier of application to a small lesion, more prompt in its action, and should an accident occur, a radium burn is far less serious than an X-ray burn.

THE APPLICATION OF RADIUM.

A lead shield at least 1 mm. thick with a slit or hole in it exposing the surface to be radiated, is fitted over the finger. This shield is held in place with adhesive plaster. The radium plaque is now applied, unscreened, and also secured with adhesive plaster. As we have a very strong, highly concentrated plaque, containing 24.23 mgms. of radium element in a ten-cent piece size, we apply it only once for twenty minutes. If what is called a full strength plaque (10.8 mgms. radium element in 1.41x1.41 cm. square) is used, it may be applied for a longer time, broken into several sittings. With the strong plaque the reaction appears in from five to ten days, and for a few days is fairly lively, after which it subsides, and with it the wart disappears.

VERRUCA OF THE PALMAR OR PLANTER SURFACE.

Verrucae of the palmar surface of the fingers may be most annoying and disabling. I have seen an artisan thrown out of work for a long time by a verruca of the palmar surface of the pulp of the index finger. In another case a surgeon was prevented from operating because of a verruca on the radial side of the palmar surface of the index finger. In attempting to ligate deep in the abdomen, for instance, the ligature would invariably cut into the wart. This was very painful, and besides, exposed to the danger of infection. Nowadays these disabilities would be modified by wearing rubber gloves.

The denudation of the wart on the palmar surface is best effected by placing over it a piece of salicylic acid plaster (10%) and then over this a larger piece of adhesive plaster. This last procedure decidedly increases the action of the salicylic acid plaster, as it prevents the escape of the heat and closes in the secretions. After a few days or a week of this treatment the epidermis may be peeled off, exposing the wart, which may then be treated by curetting and the application of trichloroacetic acid, as above described, or by the use of X-rays or radium.

Their frequency, the pain they occasion, the lameness, or complete disability to walk they involve, and the difficulties they present for diagnosis make warts of the sole the most important and most interesting of all. Because of the thickness and hardness of the epidermis these warts may look and feel like tumors or bumpiness deeply seated in the connective tissue of the sole. They may be so painful, so enduring and so lumpy as to give rise to the suspicion of malignant disease. Malignant tumors of this region are, however, very rare. Instead of the papillae remaining under the epidermis they may push their way up through a well-like hole in it and appear on the surface like granulation tissue. This is what the chiropodists call a "rose corn."

In order to lay bare the verruca the same means are taken as in the similar condition on the palm with a difference, however, in the mode of application of the salicylic acid. Salicylic acid incorporated in a plaster is here inconvenient of application because it tends to roll up in walking. It is best to employ it as a salve. A very strong salve is made with salicylic acid, lanolin and vaseline incorporating twelve per cent. of the acid. This is buttered on a piece of cloth and spread over the affected sole. If the area to be treated is over the ball of the foot the cloth may be held in place by a loop, attached to the anterior edge of the cloth and thrown over one of the toes; if over the heel, it may be secured by attaching it to the ankle portion of an old sock.

When the warts are exposed they may be treated by curetting and trichloroacetic acid as previously described. On account of the sensitiveness of the sole and the depth of the lesions this must be done under general anesthesia, now so easy of accomplishment by nitrous oxide gas. Local anesthesia with novocain and adrenalin is difficult because of the thickness of the epidermis and

the denseness of the subjacent connective tissue. Some surgeons cut out the growth, a bad practice, as the wart is apt to return in the scar no matter how widely removed, and furthermore a scar on the sole is undesirable.

The X-rays act admirably, but should be employed by an expert, as the dosage has to be heavy, and the danger of an X-ray burn is imminent. X-rays in this region have one advantage over radium which must not be overlooked; they have a powerful influence in inhibiting hyperidrosis, which is so frequently present on the palms and soles in verrucae of these regions, and which is undoubtedly an important etiological factor in their occurrence. The radiation of the entire sole or of the entire palm is sometimes curative of the two coincident affections. The sweating, however, may be dependent upon flat feet, or it may be due to eating too much sugar, or taking too much alcohol, or it may be a symptom of anemia, and in each of these contingencies the suitable treatment or regulation is of much more importance than forcibly lowering the function of the sweat glands with the X-rays, with the possibility of incurring a burn. The treatment by radium is the best by far we have employed, both for ease and safety of application and certainty of results.

It is our experience that these lesions on the sole require fully twice the quantity of radiation that they do on other regions of the body.

A consideration of the treatment of verrucae planae is omitted from the paper as it would unduly lengthen it.

NITRO-BENZOL POISONING.*

By F. F. GUNDRUM, M. D., Sacramento, Cal.

Nitro-Benzol, "Oil of Mirbane," or artificial bitter almond, is best known as a commercial product, being an intermediate substance formed in the manufacture of aniline from benzene. It is said also to be a fairly common by-product in the manufacture of explosives and has been used as a perfume for cheap soaps and shoe blacking. The poisonous character of this substance has been known for quite a long time. Judell,¹ as early as 1876 was able to collect 40 cases of poisoning with 13 deaths. Following the death of this author the work was taken up by his colleague, Filehne,² who completed an experimental examination of this poison in 1878. He carried out a very thorough study, chemical and experimental. His major conclusions are somewhat as follows: The time of appearance of symptoms in experimental animals varies from a few minutes to several hours, due to occasional mechanical difficulties which make absorption irregular. The poisonous action is not due to transformation in the body either into cyanogen or anilin. The characteristic picture of a patient acutely intoxicated with Nitro-Benzol is one of severe gastro-intestinal irritation, extreme cyanosis, coma, convulsions, etc. A chronic type of poisoning is met with in the trades where Nitro-Benzol is used. The symptoms are malaise, anemia, slight jaundice, cyanosis, loss of weight

and strength. There is some difference of opinion regarding spectroscopic changes in the blood. Several authors have reported no change. Others have described a "Nitro-Benzol line" in the red. This line is not ordinarily seen in the animal or patient who recovers. The treatment recommended by Filehne was: First: Prevention, i. e. close regulation of all trades in which Oil of Mirbane is used. Second: In acute poisoning as rapid emptying of the alimentary tract as possible, avoiding oils and alcohols which increase the diffusibility of the drug; with blood transfusion in case of necessity. Third: In chronic poisoning removal from any contact with the poison.

During the 40 years which have passed since Filehne's work numerous cases of poisoning, acute and chronic, have been reported, practically all showing a clinical picture similar to the one already described. Hogarth³ and Massini⁴ reported acute poisoning without detailing spectroscopic findings. Roth⁵ describes the blood spectrum of a patient who took a "kinder loffel" of Nitro-Benzol to produce abortion. He saw a definite sharply outlined band in the red just next the band of Oxyhaemoglobin. Adams⁶ collected a considerable number of cases which are especially interesting from the great variability of the amount taken and modes of entrance to the body. Fifteen individuals took it by mouth, dose average 23 to 120 minims with recovery; one man, however, who took "one swallow" died. There were six instances in which the drug was inhaled, one patient spilled Oil of Mirbane on his clothes and neglected to change for four hours; a second used it as a solvent for removing paraffine from his clothing. Both of these died. Two patients were poisoned by absorption through the skin, the first through an application of shoe blacking, the second a hair lotion. Two suicides, one took "5 cc." the other "one dram," both recovered. Three would-be abortionists, two recovered, one died after a dose amounting to 16 cc.

Our interest in Nitro-Benzol poisoning was aroused by the admission to the Sacramento County Hospital in January, 1915, of a patient, T. W., who arrived with the following history: He had been sentenced in a northern California court to a term at Folsom, and while waiting in the jail at Red Bluff for a train he contrived to get possession of six ounces of a "Germ Killer" used for destruction of vermin. During the railroad trip to Sacramento he drank this potion without detection. A few minutes before arriving at Sacramento it was noticed that he was looking quite ill, although he denied any discomfort. He was quite comatose, temperature normal, pulse 130, respiration 30; his face and mucous membranes showed an astonishing slaty grey cyanosis, which was present but to less extent over the entire body. Breathing was stertorous, pupils contracted, reacted sluggishly to light. Stomach washings had a peculiar "bitter almond" smell, noted by the deputy as being similar to the odor of the disinfectant used at the jail. Four hours after admission patient vomited about five

* Read before the Sacramento Society for Medical Improvement, February 19, 1918.

ounces of blood clots. A stool passed shortly afterward also contained a moderate amount of blood. Urine showed nothing remarkable. General physical examination negative. Ten cc. of blood from the median basilic vein was of a chocolate brown color. Spectroscopic examination, however, even in a fairly thick specimen, failed to show any lines except those of oxyhaemoglobin. During six days in bed with occasional moderate stimulation the cyanosis gradually disappeared. After about one week he was able to resume his interrupted journey, not apparently the worse off. Haemoglobin at the time of departure was 90%. Through the courtesy of the sheriff's office in Tehama County we were able to obtain a specimen of the germicide used by this patient as a suicidal agent. Inquiry of the manufacturers in Los Angeles as to the ingredients of the "Germ Killer" produced no reply. Through the kindness of Prof. Jaffa, Director of the Food and Drug Laboratory at Berkeley, we found that the solution contained 12.87% Nitro-Benzol, the remainder largely kerosene. We would have in 180 cc. therefore 23.16 cc. Nitro-Benzol. This is quite a large amount, more than was proven a lethal dose upon other occasions. Slow absorption from the gastro intestinal canal probably explains this recovery.

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THE ETIOLOGY AND SYMPTOMATOLOGY OF CHRONIC SUPPURATIVE OTITIS.*

By ADOLPH B. BAER, M. D., San Francisco.

Chronic middle ear suppurations occur more often in children than in adults. By far the largest percentage of purulent middle ear suppurations met with in adults date back to a childhood infection.

The acute middle ear suppurations become chronic for four different reasons: (1) Local changes which take place within the ear itself, (2) nasopharyngeal diseases and uncorrected nasopharyngeal abnormalities, (3) when they occur following or coincident with the anemias, tuberculosis, syphilis, diabetes, grip, scarlet fever, measles, diphtheria and typhoid fever, (4) malnutrition in children living in unsanitary surroundings.

The local conditions within the ear which aid in prolonging middle ear suppurations are, (a) localized or diffuse inflammation of the external meatus, with stricture, the formation of furuncles or granulations and polypi; (b) narrowing of the meatus, due to the sinking of its posterior superior wall, due to pressure from pus within the mastoid cells; (c) granulations and polypoid growths of the mucous membrane within the

tympenic cavity and upon the tympanic membrane; (d) the retention and caseation of purulent secretions in the lateral concavities of the tympanum, in the cells of the mastoid process and in the depressions of the petrous bone; (e) caries developing within the mastoid or any other part of the temporal bone, and (f) cholesteatoma.

Bacteriology.—Bacteria enter the middle ear through the eustachian tube, through the external meatus in the presence of a perforation or rupture of the drum and through the lymph channels and blood vessels. The infection is practically always mixed or poly-bacterial. The prevailing micro-organisms found in the discharge may usually be considered as the pathologic agent in the individual case, although not necessarily the primary pathologic organism, especially in chronic cases. It is not possible, however, to prognosticate the future course or severity of a suppurative otitis from the micro-organism found in the discharge. It depends far more upon the patient's systemic condition and general resistance, or the state of physical exhaustion which may follow a prolonged ear suppuration, and the resulting local conditions occurring within in the ear itself.

In a general way the organisms most frequently associated with purulent otitis are the streptococcus, pneumococcus and streptococcus mucosus. Next in frequency are the staphylococcus albus and aureus, the bacillus proteus, and pyocyanus, together with a long additional list which have no practical significance.

There is, of course, no longer any doubt that the streptococcus and pneumococcus and streptococcus mucosus are by far the most frequent bacterial causes of chronicity and complications. The staphylococcal group in the presence of a normal general resistance practically never results in serious ear complications, but is very frequently the cause of chronicity.

The tubercle bacillus is rarely seen in middle ear discharges and, even when present, does not become absolute proof of the tuberculous character of the disease. The presence of the tubercle bacilli in the scrapings from the middle ear is far more significant. The Klebs-Loeffler bacillus has occasionally been demonstrated.

The offensive, penetrating odor so frequently associated with chronic purulent otitis is due either to saprophites or to the carious bone itself.

Subjective Symptoms.—There may be none. Most frequently, however, we will have (1) a purulent discharge, (2) gradual loss of hearing, and (3) tinnitus. And in addition to these three symptoms, which are practically always present, there may be a feeling of pressure and heaviness in the head, obstinate, dull or lancinating pain and headache over the side and top of the head. The pain may be caused by absence or failure of free drainage, resulting from a temporary closure of the drum perforation, stricture of the meatus, or the presence of polypoid growths and granulations and cholesteatoma.

The pain increases as the pressure increases, when the pus becomes sacculated, when the

* Read before the San Francisco County Medical Society, September 25, 1917.

mucous membrane becomes ulcerated, when the cheesy masses in the middle ear and mastoid undergo decomposition and when there is caries of the temporal bone or involvement of the meninges. There may be a rise in temperature, dizziness, vomiting, loss of equilibrium and nystagmus, these latter symptoms being, of course, the indication of the beginning of one of the various brain or labyrinth complications. During the suppurative stage these head symptoms will increase if the discharge stops (owing to obstruction), and they will diminish or stop altogether if the obstruction be removed so as to permit of free drainage.

The subjective noises are usually intermittent but may be continuous, especially in anemic, cachectic, hysterical or nervous individuals, in syphilis and when we have a combined adhesive process of more or less long standing.

Diminished or total loss of the sense of taste may be noticed by the patient owing to involvement of the chorda tympani nerve or tympanic plexus. Disturbances of hearing will vary greatly in different patients and at different times, depending upon the amount of suppuration, the varying degrees of swelling and destruction of the musous membranes, the permeability of the eustachian tubes, the presence of adhesions or ankylosis of the ossicles, the condition of the oval window and the presence or absence of labyrinth involvement. After the suppurative process has run its course, the degree of hearing disturbance will depend upon the permanent pathologic changes remaining in the middle and internal ears.

Objective Signs and Symptoms.—Tenderness on pressure over the mastoid, foul smelling discharge from the external meatus, sinking of posterior superior wall, and the presence of polypi and granulations in the external meatus. The presence of blood in the discharge usually points to polypi and vascular granulations.

Drum perforations are most frequently anterior-inferior or posterior-superior. They vary from pin-hole perforations to complete drum destruction, being greatest in scarlet fever, diphtheria, tuberculosis, diabetes, and syphilitic middle ear suppurations.

They may be round or oval, elliptical or semilunar, angular, heart-shaped or kidney-shaped and they may or may not extend to the margin, involving the annulus tympanicus. Multiple perforations usually mean tuberculosis. The margin of the perforation may remain free or become attached to the promontory wall itself, which will undergo changes varying from slight tumefaction or thickening to the presence of large granulations and polypi extending through the perforation. The ear ossicles are present in varying degrees and they may be partly or completely destroyed. Calcifications of various shapes and sizes may be present in the remains of the membrane. Perforations extending to the margin of the annulus tympanicus usually indicate the presence of bone necrosis at this point.

Perforations in Shrapnell's membrane may indicate a primary suppuration located within the attic, but more frequently a generalized suppu-

tive process of the entire middle ear, which has cleared up and localized itself within the attic. These suppurations may produce very little disturbance of hearing and may run their course for years without symptoms, or they may be accompanied by intermittent ear pains, hemicranial headache, a feeling of pressure and heaviness and violent attacks of dizziness, these latter symptoms being usually associated with the formation of granulations and cholesteatoma in the attic and with caries of the external attic and labyrinth walls.

The terminations of chronic middle ear suppurations are, (a) cure with complete restoration of hearing, (b) disturbances of hearing of different degrees up to complete deafness, (c) desquamation and formation of cholesteatoma, (d) ulceration and carionecrosis in the temporal bone, with chronic mastoid and labyrinth changes, (e) the development of an acute exacerbation with all the symptoms of an acute middle ear suppuration, acute mastoid symptoms and acute labyrinth and brain symptoms.

177 Post Street.

THE PREVENTION AND TREATMENT OF LOCALIZED MUSCULAR CONTRACTURES.

By A. GOTTLIEB, M. D., San Francisco.

Muscular contractures following injuries or fractures in the vicinity of joints are frequent causes of limitation of motion not alone of the joints involved, but of the distant joints of the extremity as well. Such contractures result in loss of time to the injured, and reduce his working efficiency for a long time.

The production of post-traumatic localized myogenic contractures is ascribed to immobilization of injured joints in the same position for a continuous period of time. Immobilization antagonizes the circulation and nutrition, lessens the power of absorption and favors the organization of inflammatory exudates in the injured limb.

The various theories advanced to explain the physiologic mechanism in the production of localized myogenic contractures, I will not discuss in this place. They all attempt to prove the same truth, namely, that the existence of peripheral irritation is required to maintain continuous localized contraction of a muscle or muscle group, and that this latter leads to the resistant contractures. The seat of irritation is sought by some writers (Goldschneider,¹ Przhevalski²), in the sensory nerve endings of the muscle tendons; by others (McDougal,³ Cooper⁴), in the nerve distribution within the muscle proper. All conclude that in the injury of the soft structures and in the lack of their normal metabolism lies the stimulus for the irritation of the nerve endings. Continuous muscular contraction is the method adopted by nature to secure rest; it is a wise and purposeful arrangement; but when this helpful aid is too persistent and excessive, it does harm by leaving the muscles in a lasting spastic contraction. Serious damage to the structure and the function of the muscles may

result from this continuous spasm, since fibrotic changes take place within the muscles. If precautions are not taken in the early period of treatment, resistant and troublesome contractures will result. These precautions are expressed in the early application of medico-mechanic treatment.

Our limitation in the prevention of this form of contractures is based upon the necessity of immobilizing neighboring joints to secure rest for the injured tissues, which is a *sine qua non* for the process of repair of bone or of soft structures.

Immobilization, as such, in the formation of contractures is only a minor factor, but in conjunction with an acute injury or a recent fracture, it does lasting harm. Therefore when fixation appears necessary, its duration should be shortened to the least possible time consistent with the character and the extent of the injury, and so bring about the release of the contracted tissues at the earliest moment, when functional treatment should be instituted. This treatment consists in massage and exercises. Massage effects the early absorption of inflammatory exudate and promotes local metabolism. It should be given at first for about 5 minutes; only gradually should the time be increased. I wish to emphasize that this massage, which should be very gentle in the beginning, can and should be executed by the surgeon himself; it should not be turned over to the masseur who is not efficiently trained for this kind of work. More harm than good may result from inefficient massage.

The physiologic effect of exercises is similar to that of massage. It is of inestimable value in the prevention of contractures. The exercises consist in assistive and resistive movement of the joints. Not only should the joint, in or near which the injury has occurred, be manipulated, but the distant joints of the extremity as well. Assistive movements are given first, and only after the muscles have gained in strength, are resistive exercises added. In applying massage and exercises precaution should be taken against the causation of muscular spasm; the latter always indicates that the muscle has been overstimulated and gives notice that further manipulation will be harmful.

The treatment of developed muscular contractures is divided into medico-mechanic and operative measures. The latter I will not discuss. The medico-mechanic treatment aims to restore the metabolic function of the affected muscles and to overcome the muscular resistance which limits the motion of the joints in question.

According to Lange,⁵ 83% of contractures were curable by medico-mechanic treatment, while in only 17%, where conservative measures failed, was it necessary to resort to operative procedures. G. G. Cooper¹ attributes the cure of most myogenic contractures to the nonsurgical measures and highly recommends their application. The same opinion is expressed by Pelteson⁶ and many other European surgeons who have used various medico-mechanic means to restore normal function to many cases of muscular contractures which have followed fractures and manifold injuries sustained on the battlefield of war.

Before the application of massage and exercises, the deformed extremity is exposed to either radiant or convective heat, to light or to electrically generated heat, i. e., diathermy.

The influence of radiant and convective heat and radiant light upon the contracted muscles is based upon the evolution of heat within the tissues. The induced hyperemia exerts important local influence: the tissues relax, the tension is relieved, the blood vessels dilate and a fresh supply of arterial blood invades the area. The fibrous changes within the muscles have constricted the vessels and exsanguinated them. The evolved heat softens the fibrous tissues, opens them up and thus promotes metabolic changes within the muscles. For the application of radiant heat I employ the incandescent light, the arc lamp or the electric bath cabinet. I use the radiant heat in preference to the hot air bath, because I believe that local metabolism is influenced not only by the heat alone, but that the penetrating rays of light have a chemical action upon the tissues, inducing oxidation and promoting metabolism.

No method of heating the tissues surpasses the use of diathermy, by which is meant heating of the tissues by an electrical current of high frequency. The advantage of producing heat in this manner are that the heat can easily be measured and localized, without, however, the unpleasant sensation usually associated with an electric current. Further, without unduly heating the skin, a uniform current of heat passes from one electrode to the other, heating the tissues which lie between the electrodes. For the application of this treatment I use the Tesla high frequency apparatus.

Following the process of heating, mechanotherapeutic treatment is given. This consists in appropriate exercises and massage which are carried out manually. It is an erroneous belief that costly appliances are necessary for this kind of treatment. The best results are obtained without complicated apparatus, as is practiced successfully in Europe during the present war. I wish to emphasize the value of effleurage or stroking in the direction of the lymph flow and the importance of active exercises in the treatment of contracted muscles. Effleurage favors nutrition of the tissues by increasing the circulation within them. Stroking of the part in the direction of the venous and lymph flow empties the veins and the lymph vessels; fresh blood and lymph again fill the vessels from behind and thus a continuous current of these nutritive fluids is promoted.

By active exercises are understood all those movements which are voluntarily executed by the patient to overcome resistance. The operator only assists or resists these intentional movements. Assistive exercises aim to diminish the resistance offered by the contractures; they should by no means become forcible, because any violent stretching will rupture the tissues, cause hemorrhage and further restrict motion. The most valuable of all movements in these cases are the resistive exercises. These are carried out by supplying resistance to active movements. Resistance is offered either by

the hands of the operator or by mechanical means; the former is preferable to the latter, because exact dosage and regulation of the resistance, in other words, individualization of motion, cannot be supplied by any apparatus, whether a Zander, a Herz or a Krukenberg. No mechanical device is able to perceive that slight increase of spasm which follows when the contracted muscles are irritated through overwork. To the experienced hand of the operator this spasm, mild as it may be, serves as an indicator that further motion must be suspended, lest harm may ensue.

CONCLUSIONS.

1. The injured or fractured extremity should be immobilized not longer than consistent with the repair of the tissues.
2. To prevent muscular contractures, functional treatment, mechano-therapy, must be instituted at the earliest possible time.
3. Medico-mechanic measures are to be applied persistently for the cure of myogenic contractures; only after failure of a thorough conservative treatment should forcible stretching be undertaken.

Discussion.

Dr. J. Rosenstirn: The various methods of massage and thermo-therapeutics have developed into a specialty which is somewhat foreign to the general surgeon. For a great many years I have condemned too long immobilization of fractures, and I believe it has been recognized that those surgeons who do not over-extend the period of immobilization of fractures get the best results. For contractures I have seen excellent results from Dr. Gottlieb's therapeutic measures, and I believe that the judicious employment of such measures, carried out for a more or less prolonged period, will give excellent results and do away with our brutal breaking of adhesions and brutal extensions which were practiced up to a few years ago.

Dr. Harry M. Sherman: I am very glad to be asked to speak on this subject, because I have had to do with some phases of it and have had experiences different from those which Dr. Rosenstirn has mentioned. Immobilization for a traumatized tissue must be persisted in until the trauma has been recovered from so that mobilization shall not reproduce in any phase a return of the traumatized condition. A fractured bone must be held until it is consolidated; mobilization before that time will only end in slipping or bending of fragments and failure to get the anatomical result desired. I am willing to agree that after the bone has healed further immobilization is unnecessary, but if I were to choose between keeping the splint on too long, or removing it too soon, I should prefer keeping it on too long.

I am perfectly delighted to agree with Dr. Gottlieb about massage—I think it is one of the most dangerous things in the hands of people who pretend to be experts.

The late Dr. McMonagle at one time had patients massaged by a Swedish woman, and they all had very long convalescences; after a while he had it done no more, and his patients made more comfortable and quicker recoveries. Massage requires effort on the part of the patient in accepting and tolerating it. It can easily exhaust, or retraumatize.

Massage in bone and joint cases must be given with the full knowledge that on one side you have a strong person, on the other a bone, and between them traumatized tissue, which is wholly at the mercy of the masseur. Head work rather than hand work is needed here and it is sometimes hard to get. Recently I had a girl in whom we were trying to get an increase in elbow joint

motion. I talked to the masseuse and told her how I wanted her work done and that it should not be permitted to hurt, but this woman could not understand that force must not be used; she gave pain, she did harm, and the treatments had to be stopped. Brisement is always reprehensible; the man who does it takes a greater chance than the man who goes to war; he will do damage more frequently than good.

I always allow children to work their own joints loose without any massage or baking; if a child cannot get its own joints loose, no one else can.

Some of the disabling, crippling conditions near joints are outside of the muscles entirely, as in a case of extreme equinus—one due to spina bifida occulta, on which I had operated when the patient was a baby—where the lesion was in a plaque of fibrous tissue behind the joint, under the tendo-achillis. No mobility was given the foot by the section of the tendo-achillis, and a cutting of the fibrous tissue through an open incision from the inner to the outer sides of the back of the joint, including the posterior ligament, was necessary. Another girl had this same deformity, due to a burn on the front of the leg and neglect of the position of the foot during a tedious healing. I found the same obstruction to dorsal extension of the foot, and had to treat it in the same way.

Dr. George J. McChesney: I would like to ask Dr. Gottlieb whether he finds any difference in therapeutic efficiency in the use of the X-ray, or baking by means of electric light or by the use of heliotherapy, and if he has compared the use of radium with these.

Dr. Gottlieb: The object of reading my paper was to bring to your notice such conditions as are frequently turned loose without treatment. These patients usually land in the hands of osteopaths, chiropractors, naturopaths and other so-called doctors. It is time that for these cases medico-mechanic measures should be applied by the orthopedic or the general surgeon.

With Dr. Sherman's remark I wish to disagree. I did not say that the immobilization should be discontinued; but that while the extremity is immobilized as long as consistent with the process of repair, active and, in time, resistive exercises should be given.

To the question of Dr. McChesney, I wish to answer that I have not applied X-ray or radium in these cases.

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ARCH DEFECTS OF THE HUMAN FOOT.

By ETHAN H. SMITH, M. D., San Francisco.

In the past the profession of medicine has given all too little attention to defects of the arch of the human foot. They have either not paid heed to it at all, or have heedlessly sent the patient to a shoe store or instrument house, with advice to secure a "good arch support." They have never taken the trouble to find out whether or not such a thing as a good arch support was on the market, taking it for granted that because they were on sale they must necessarily accomplish the purpose for which they were made.

It is impossible to properly treat defects of the arches of the feet without understanding the pathology that is present in such cases.

First of all, in little children we have the type of foot known to the literature of the past as the weak foot. This condition was formerly much misunderstood; the ligaments and muscles were blamed for the deformity and the disability accompanying it. Since the advent of the X-ray, many feet of children have been radiographed, and we have come to a better understanding of the weak foot. Instead of the muscles and ligaments being principally to blame, we find that the weak foot is due to delayed ossification of the bones of the foot. Recently articles have appeared in medical journals giving illustrations made from X-ray plates of children's feet, showing an alleged absence of some of the bones of the foot. In looking over these illustrations it may be noted that the bones that are presumed to be absent are those of the medio and metatarsal region. From the contour of the soft parts, as shown in these same illustrations, it is very reasonable to believe that the bones are not absent, but that there is a delayed ossification causing the bones to be very soft and pliable. As a result of this pliability we have a very weak foot, which is the most difficult to try to get into shape, and retain in a semblance of the normal, of any foot showing arch trouble with which we have to deal. Fortunately, as a rule these feet are not very painful. As a result of the weakness in the foot, the tibial muscles are very much relaxed, but have always been so and do not cause as much disability as would be the case in a foot that had been normal for some years and then broken down.

We have two types of so-called broken arch: one the most prevalent of all, the functional type; and a rare type which we may be permitted to call an organic type of flat foot. In the organic type the foot is very rigid from the beginning, the bone structure is softened and the bones undergo great changes in shape in a similar manner to the changes in the shape of the vertebrae in a bad organic scoliosis. It is well nigh impossible to correct this deformity, or even partially correct it, either with or without operation. The whole foot has lost its semblance to the normal foot and the condition is one which is a very unpromising sort of case for anyone to undertake. These feet undergo rapid and permanent ankylosis.

In the functional type of flat foot there is no disability with the arch until the tibial muscles have elongated and become partially atrophic; especially is this true of the posterior tibial muscle. The arch of the foot does not pronate. The term *pronation of the foot* is a grave misnomer. It would imply that the tibia rotated over the fibula as does the radius over the ulna at the wrist. This is both anatomically and mechanically impossible. There is an abduction of all the foot anterior to the astragalus on the head of the astragalus. This produces a buckling inward of the arch. In pronounced cases the arch may sag, but not enough to be even a semblance of pronation. We would not call the flattening out of the hand placed with the palm down a part of the act of pronation, nor is a flattening of the foot a pronation in any sense of the word.

Where this abduction occurs in early life the

scaphoid is partially or completely dislocated from the head of the astragalus and comes to rest on the fibular side of the neck of the astragalus; the neck of the astragalus is gradually bent toward the internal malleolus, causing a permanent and incurable deformity. All of the bones of the mediotarsal region become displaced to some degree.

Gonorrheal arthritis of the foot is much more prevalent than has been realized by the profession. This infection will cause a most rapid distortion of the arch of the type known as broken arch or flat foot. It also tends to rapid ankylosis and permanent disability in many cases. This type of foot has been almost ignored in treating flat foot and no end of misery has resulted.

Traumatic flat foot is not uncommon. This results from jumping on the edge of a stair tread, or round stone, or some other object, with all the weight striking under the hollow of the foot. The arch buckles inward immediately and remains in the distorted position until replaced under an anesthetic. No replacement should ever be undertaken until absence of fracture has been determined by the X-ray.

Infections of the articulations of the feet from the teeth, tonsils, genito-urinary tract or gastrointestinal tract may all aggravate troubles with the arches of the feet, causing failure of any sort of treatment until such focal centers of infection have been sought out and eradicated.

Insisting on children toeing out in walking is utterly bad. Most people seem to be imbued with a superstition that it is a disgrace to be "pigeon-toed." They insist on a child walking with the foot rotated outward, thus hampering the normal action of the ankle and foot, straining the posterior tibial muscles and paving the way for flat foot and bunions.

Spring heel shoes for babies, and all shoes for little children, are made with a flat sole without any shape to correspond to the normal contour of the foot. The soft foot, with bones only beginning to ossify, is buttoned or laced down to this flat sole, and many broken arches result. Children's shoes are a lot of unskillfully designed leather pods, designed by careless manufacturers who are totally ignorant of the necessities of the growing foot. Many brands of grotesque shoes are advertised as the most wonderful shoes ever designed. Most of these shoes are a farce or worse and have nothing of merit about them. People, even members of our profession, will scoff at a patent medicine and swallow the most astounding lies about shoes.

Paralytic flat foot must not be confused with the ordinary types of derangement of the longitudinal arch. It is seldom ever amenable to treatment such as would prove effective in the commoner types of arch trouble. It must be considered in a class by itself and treated accordingly.

Any flat foot that is in any way sore or painful about the bones or joints should be radiographed. No treatment of such a foot should be undertaken by any method until a careful radiograph shows absence of destructive bone lesions. Marked flat foot does not exclude serious infections of the bones. The author saw a case in a man of about 35 years some years ago who had exaggerated

flat foot. The feet were quite sore but not rigid. The patient denied gonorrhea and showed no signs of the disease. There was no swelling of either foot, no edema and no sign of tenosynovitis. The soreness was in the mediotarsal region. The feet were put up in plaster of paris in moderate correction. They were padded with exceptional care. The man complained bitterly of one foot, but not much of the other. After a few weeks he was given arch supports and disappeared. About three months thereafter the author met him in a hospital ward. He had undergone amputation of the painful foot for extensive destructive disease of the bones, the nature of which could not be learned. At that time it was difficult to get a radiograph of anything else than a fracture.

Since then the author was consulted by a boy about fifteen years of age. He had exaggerated flat feet. He had been treated in a good clinic in an excellent hospital, where the clinician had prescribed steel arch supports, without any preliminary corrective treatment. In a few days one foot was swollen and excessively painful. He was told that he must expect that until his arches were raised. On coming to me, I sent him for an X-ray plate, which showed a cavity (probably tubercular) in the body of the astragalus. He passed out of my hands into the free ward of a hospital which insisted on all operations being done by its own staff, and I lost track of the case.

These cases are mentioned to show what an important condition this is from a surgical standpoint and how dangerous it is to treat them as an indifferent sort of case. It is still more disastrous to have these cases tampered with by chiropractors, shoe dealers and tinkering mechanics.

TREATMENT.

Operation has been suggested for this condition. Among the early operative measures suggested was arthrodesis at the articulation between the scaphoid bone and the astragalus. This procedure gave most discouraging results, and arthrodesis of this articulation, combined with an autogenous bone graft through the scaphoid into the neck of the astragalus, has been suggested recently by Albee. The latter operation, when done by those associated directly with Dr. Albee himself, has been of doubtful expediency. The author of this paper has recently seen a case in which the operation was an utter failure. The articular cartilage seemed not to have been completely removed from the surface of the astragalus and opposing surface of the scaphoid bone, and a condition similar to that known as osteochondritis has developed. The bone graft promptly broke in one foot and did not hold in the other. The scaphoid bone promptly became displaced on the head of the astragalus, and in the case of the foot in which the bone graft broke, the irritation has produced a very serious condition. The other foot is comfortable only when supported by a proper arch support.

In cases of organic flat foot with great distortion, much rigidity, and rapid and complete ankylosis, a large cuneiform osteotomy will improve the shape and position of the foot and may be of some benefit.



Shows slow progress of ossification in weak foot.

This throws us back to the older methods of treatment, but because of its being more recent, I mention it first.

In treating flat foot, many cases must be over corrected and put up in strong plaster of paris from toes to knee. The foot must be well padded with good absorbent cotton, and some cases will also require felt pads to protect bony prominences. The cotton must be bound firmly, but comfortably, in place with a gauze bandage before the plaster is applied. Sheet wadding is an abomination in surgery and worse under plaster of paris than elsewhere. The plaster must be worn from four to twelve weeks, changing it every two to three weeks. The plaster bandage must be filled in under the arch so as to prevent the plaster dressing from breaking down and releasing the over corrected arch. A gonorrheal foot must *never* be put up in correction sufficient to cause pain. Some rigid flat feet must be redressed under an anesthetic, thus forcibly correcting them, over correcting them when possible, and then put in plaster. A gonorrheal foot must *not be forcibly* corrected, as it will cause fracture of the bones, rupture of the ligaments, and result in unspeakable torture to the patient and a relapse that is worse than the original deformity. Plaster of paris to the extent of not causing pain is ideal treatment for these feet, combined with suitable treatment of the primary gonorrheal focus. Early application of plaster in gonorrheal feet will allay irritation and pre-



A normal line from heel to toe.

vent ankylosis, provided the feet are abundantly padded and not too tightly enveloped.

Nearly all the arch supports in the market are shaped to conform to an abducted foot and would ruin a normal arch. They raise under the articulation between the scaphoid and internal cuneiform bones, lift up this articulation a trifle, bruise these bones, and allow the arch to sag inward and throw the heel outward still more. They still farther damage the posterior tibial muscle. They are absurdly wrong in principle and are a disastrous failure. The Whitman plate is constructed on fairly normal lines, but is as comfortable as a steel trap and impossible for most patients to wear. It does not give consideration to the weak tibial muscles, and contracted peronei and calf muscles. This contraction of muscles is also to be overcome by the plaster of paris. A metal plate under a gonorrheal or any infected foot will in many cases put a patient off his feet and frequently lay him up in bed for weeks.

First put the feet up in plaster and afterward put a felt, leather-covered arch support of normal shape under the foot, in a straight last, broad, strong-shanked shoe. Do not try to compel women to wear flat-heeled shoes after having worn high heels. The flexor muscles of the thigh and leg are permanently shortened; a flat heel will cause intolerable pain in the back and limbs, and your treatment will be abandoned.

If there is metatarsalgia, or Morton's painful foot, associated with flat foot, as frequently hap-

pens, have a felt metatarsal pad applied to the felt arch support so that it will relieve the pressure on the metatarso-phalangeal articulations. Metatarsalgia is invariably due to arthritis in the metatarso-phalangeal joints. It is indicated by one or more calluses over these joints on the sole of the foot and a more or less painful joint or joints, easily detected by manipulating the joints. It is *never* due to pinching of a nerve between the bones.

Anatomic shoes and much-advertised shoes are a fraud. The ground gripper shoe is the most grotesque shoe of the lot. Swing last shoes are very common now and are all bad, superlatively bad. They ruin the fourth and fifth toes and the fifth metatarso-phalangeal joint. Manufacturers are deluging the market with swing last shoes in a vain attempt to prevent flat foot.

The plantar tissues do not stretch. If they did we would not have flat foot so commonly as at present. The plantar tissues will contract if irritated and inflamed, and aggravate flat foot. I have recently seen a so-called broken arch associated with marked pes cavus. Arch supports must be made for each individual. As well try to buy



- A—Line of astragalus.
- B—Head of astragalus uncovered.
- C—Pseudo-arthritis side of neck of astragalus.
- D—Exostosis formation due to abnormal pull of ligaments.
- E—Sliding inward of astragalus.
- F—Line showing degree of abduction of foot anterior to head of astragalus.

ready made false teeth as ready made arch supports.

Walking on stone pavements while wearing bad shoes is the most prevalent cause of flat foot. Shop employees who stand for hours on stone floors and frequently lift heavy commodities often have flat foot. Soft-soled, weak-shanked shoes on stone pavements are a ridiculously frequent cause.

Not much progress will be made against flat foot until the whole problem is taken up by our profession and studied intelligently and in good faith.

The impression of the sole of the foot on a board or glass plate is no test whatsoever of a flat foot. If the foot is markedly flat it can be seen at a glance. If only slightly flat, the impression made by the sole may be that of a presumably normal foot. The leg muscles must be tested, and look for abduction of the foot in front of the ankle, with inward buckling of the arch and shifting of the scaphoid bone on the head of the astragalus.

GONORRHOEA IN WOMEN.*

WILLIAM E. STEVENS, M. D., San Francisco.

Gonorrhoea in women, although a most serious and frequently fatal disease, the immediate and remote consequences of which are probably responsible for more suffering and unhappiness than all other diseases combined, is nevertheless more often neglected than any other pathological condition of the female genito-urinary tract. At the present time when so much depends upon the health of our armed forces the necessity for its detection and eradication is of first importance, for notwithstanding the measures directed toward the suppression of prostitution and illicit intercourse, prophylactic treatment and punishment for concealment, the number of infections among our soldiers at home, and abroad is sufficient to cause the army officials grave concern as it ranks first in the list of infectious diseases as a cause of physical debility. In a recent communication the surgeon general of the public health service states that venereal disease is the most serious problem from the standpoint of military efficiency which confronts the army authorities today.

This paper is based upon the examination of seven hundred and thirty-one women arrested upon the charge of prostitution or vagrancy and the treatment of one hundred and seventy-five, the majority of whom were confined in a large ward set aside for that purpose by the Board of Health in the San Francisco County Hospital. Of this number one hundred and forty-seven patients were found to be infected with gonorrhoea, two hundred and forty-three with syphilis and ninety-six with both gonorrhoea and syphilis.

The diagnosis of gonorrhoea was based upon the detection of the organism in the secretions or the presence of a two or three plus positive complement fixation test together with characteristic clinical symptoms. Many cases were doubtlessly overlooked even in those subjected to repeated examinations for the difficulty of detection of gonococci in women, especially in chronic infections, is univer-

sally recognized and the fallibility of the complement fixation test in its present form is likewise understood. The absence of subjective symptoms is of little importance but a history of pelvic inflammation and menstrual irregularities, burning during urination and vesical irritability at the time the discharge first made its appearance is most suggestive.

The following procedure is followed in the investigation of our cases:

Smears are first obtained for microscopical examination by compression of the Bartholinian glands between the two index fingers. Parenthetically permit me to advise precaution during this procedure. Recently while examining an infected gland a small amount of secretion was forcibly ejected a distance of almost two feet, narrowly missing the eyes of the examiner.

Following the examination of these glands, smears are obtained from the urethra by forcibly stroking the canal from the internal to the external meatus. In the absence of microscopical secretion the two glass test is of decided value in the diagnosis of urethral conditions in women as well as in men. After a vaginal douche of sterile water or salt solution and a thorough cleansing of the external genitals the urine is voided in two portions. Cloudiness of the first portion or the detection of pus microscopically denotes the presence of urethritis. I would like to emphasize the necessity for endoscopy in women, a procedure which has not received the attention it deserves. The Farrar female endoscope which is a Kelly urethroscope with a lamp at the distal extremity is most useful in the examination and treatment of the female urethra. Following the urethral examination an effort is next made to obtain secretion from Skene's glands by compressing them between the index fingers. This is a procedure frequently overlooked by the genito-urinary surgeon as well as the general practitioner and its neglect is often responsible for failure in the diagnosis and treatment of these cases. In a number of instances the only evidence of gonorrhoea was found in secretion expressed in the above manner from one of these small glands.

Smears are obtained from the cervix by compressing the anterior and posterior lips several times between the blades of a bivalve speculum after a thorough cleansing with cotton tipped applicators. Gonococci are more frequently demonstrated following this traumatism. It is also sometimes possible to obtain positive smears by massaging the Fallopian tubes and fundus of the uterus in the direction of the cervix. Obviously these methods should not be followed in the presence of an acute infection. In children and virgins the endoscope is of value for examination and treatment of both the cervix and vagina.

In a series of one hundred and twelve cases, either microscopically positive or clinically positive together with a two or three plus positive complement fixation, the infection was located in the cervix in sixty-nine patients, in the urethra in twenty-eight and in one or both Bartholinian glands in twenty-two patients.

In ninety cases which were clinically positive only the urethra was involved in thirty-nine, the

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cervix in twenty-nine and one or both Bartholinian glands in twenty-seven.

It is to be noted that in the positive cases, a large majority of which were chronic, the cervix was most frequently involved, next the urethra and lastly the Bartholinian glands, while in the cases which were clinically positive only the number of urethral infections exceeded those of the cervix by about forty per cent. The frequency of Bartholinian gland involvement in both positive and negative cases is also of interest.

While infection of the lower genito-urinary tract is most commonly associated with the gonococcus, other organisms are frequently responsible.

In two hundred and ninety-four suspicious cases the gonococcus was the offender in one hundred and thirty-five and other organisms in ninety. Parenthetically permit me to call attention to the fact that a non specific urethritis usually associated with a trigonitis is very often responsible for urethral discharge and urinary disturbances in women. In these conditions the shortness of the urethra, together with its close proximity to the vagina and rectum, are without doubt the most important etiological factors.

In fifty suspicious cervixes in which gonococci could not be demonstrated, staphylococci were present in thirty-six, various diplococci in twenty-nine, streptococci in nine, bacilli in seven and diplobacilli in two. In twenty-five suspicious urethrae in which it was impossible to find gram negative intracellular organisms other diplococci were present in eighteen, staphylococci in eight, streptococci in two, diplobacilli in two and other bacilli in one. In twenty-two suspicious Bartholinian glands in which the gonococcus was not detected other diplococci were found in twelve, staphylococci in eight, streptococci in five and bacilli in three.

The frequency of the coccus in these locations is interesting, differing as it does from the upper urinary tract in the female where the colon bacillus is usually responsible for the infection.

Of greater importance however is the prevalence of gram positive and other diplococci. In this connection the experiments of Edward E. Johnson of San Francisco are illuminating. He claims to have removed from the peritoneal cavity of guinea pigs, after the injection of certain cultures of gram positive diplococci, a gram negative intracellular diplococcus having all the cultural and morphological characteristics of the gonococcus, inoculation with the latter producing gonorrhoeal ophthalmia. These gram negative organisms regained their gram positive characteristics upon reculturing upon acid media. This would explain the infectiousness of many of these women in whose genital organs the gram positive and degenerative forms of diplococci are quite common but the characteristic gram negative intracellular diplococci so difficult of demonstration.

As the gonorrheal complement fixation test is a genuine antigen antibody test and no other disease will give a positive reaction it is of value from a positive standpoint. In a series of one

thousand cases Shupe did not obtain a positive reaction except in the presence of gonorrhoea unless the patient had received antigonococcus vaccine. It will give a positive in fifty to sixty per cent. of cases of pyosalpingitis and is consequently of value in differentiating pelvic inflammatory conditions in women.

For the following reasons it is of less value than the Wassermann complement fixation test for syphilis, a negative reaction being of little diagnostic importance:

1. The gonococcus antibody is usually produced in small amounts.
2. It is difficult to prepare and preserve a polyvalent gonococcic antigen.
3. There are a large number of different strains of gonococcus.
4. Except in vulvo-vaginitis in children a positive reaction is seldom obtained in the female unless the infection has reached the cervix.

The technique in our series of one hundred and sixty-three cases is identical with that of the Wassermann except that the antigen used was the gonococcus antigen prepared by Parke, Davis & Company. It is always titrated before using.

Twenty-three plus and forty-one two-plus positives were obtained, making a total of sixty-one cases in which we considered the serological findings sufficient evidence of gonorrhoeal infection. Of this number ten were microscopically positive while two had a previous history of gonorrhoea. Seven were microscopically and clinically positive and sixteen were clinically positive only. The balance were both clinically and microscopically negative.

Gradwohl, using the Parke, Davis antigen, claims fifty-six per cent. more positives by using a technique similar to the Gradwohl modification of the Hecht-Weinberg test for syphilis. This embodies the use of unheated sera and the utilization of the natural complement and anti-sheep amboceptor. We have used this method in a small series of cases but so far find it of little additional value.

TREATMENT.

Acute urethritis is treated by rest in bed, restricted diet, large quantities of liquids internally, sedatives such as hyoscyamus and drugs rendering the urine alkaline such as potassium acetate and occasionally by the injection of ten per cent. argyrol solution. Local treatment is usually reserved however for subacute and chronic cases. We have obtained the best results in the latter by the instillation of one to three per cent. solutions of silver nitrate and the application of a ten per cent. solution of the same drug through the female urethroscope. In skenitis the ducts should be incised, cauterized or fulgured by means of a fine wire. Whereas either of these measures will cure the condition, instillations are of little value, simply resulting in loss of time.

Removal of the Bartholinian glands or fulguration is likewise the only satisfactory method of treating infections of these organs.

In cervicitis we have obtained good results in some cases from the use of twenty per cent. solu-

tions of silver nitrate following a thorough cleansing of the canal. In a limited number of private patients I have found fulguration of decided value in this location. Occasionally amputation of the cervix will be required. In the presence of gonorrhoeal pus tubes treatment directed toward the cervix alone will be of little value as this source of reinfection must naturally be eradicated before a cure can be expected.

Gonorrhoeal endometritis is an uncommon condition and the use of the overworked curette following this diagnosis has resulted in much harm and has seldom been of benefit to the patient.

Finally permit me to emphasize the fact that radical surgical measures are frequently indicated in Neisser infections and that temporizing with injections, etc., is unjustifiable, merely resulting in the loss of time. It must be admitted that it is often impossible to positively assert that a gonorrhoea is cured, for notwithstanding the absence of objective and subjective symptoms some women apparently remain capable of infection as long as they live. This fact, however, should not discourage us in our attempts to conquer a most serious disease.

Thanks are due Dr. Agnes Walker and J. T. Boyer of the San Francisco Health Department and Dr. Maurice Heppner of the San Francisco Hospital for their valuable assistance in the examination and treatment of these cases.

Shreve Building.

Book Reviews

Materia Medica, Pharmacology, Therapeutics and Prescription Writing. For Students and Practitioners. By Walter A. Bastedo, Ph. G., M. D., Assistant Professor of Clinical Medicine Columbia University. Second Edition, Reset. Octavo of 654 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1918. Cloth, \$4.00 net.

Many workers recognize that the field of pharmacology has become so wide that it is now impossible for one person to speak authoritatively on all of its problems and this holds with double force with respect to the combined subjects of pharmacology and therapeutics. Most of us are looking to the future for a handbook of pharmacology in which the individual drugs shall be discussed by numerous conscientious workers who have devoted time to the drugs they discuss and would therefore be in a position to value the immense literature which has grown up. Until that time comes, we must rely upon general treatises written by one or two persons and such books must have their limitations.

The work of Bastedo is based on the lecture courses given at Columbia University. It is clearly and attractively written and holds one's attention. The publishers have enhanced its value by the use of clear type and proper spacing. The book is written by a clinician evidently for students who intend to enter the practice of medicine. Such students will find valuable hints and suggestions as to treatment and will learn the relation of pharmacology to therapeutics. It is distinctly a textbook, but a good one, hardly full enough for the general practitioner. The views expressed are up to date, but at times seem dogmatic, the reasons not always being given in detail. Some chapters might have been expanded with profit.

The reviewer believes that part of our present

failure in medicine is due to the fact that we have not always attempted to develop the logical or critical ability of our students and have made dogmatic statements, whereas students should be taught to criticize the evidence for their beliefs. Such a critical textbook in pharmacology is lacking. The work of Bastedo has been reprinted several times and has just been revised into a new edition. This would indicate its popularity.

A. C. C.

Postgraduate Medicine. Prevention and Treatment of Disease. By Augustus Caillé. Illustrated. N. Y.: Appleton. 1918.

Regarded from the viewpoint of a manual of treatment it is hardly fair to the author to characterize this somewhat sketchy though exhaustive volume as being superficial and therefore unsatisfactory. Rather should this work be read as a most interesting and valuably suggestive epitome of the thoughts on treatment by a man with a world of experience and a vast fund of resources. There is not a field of medicine that is not given recognition and not a mode of treatment that is not given critical notice and mention. A reading of this book will be sure to give one a number of valuable suggestions in any field that can be mentioned.

And yet, one feels that the author has written a book that should be regarded as a collection of the wisdom and experience of a wise and experienced medical man, and not a volume for reference in case of need. Thus the usefulness of Dr. Caillé's book is more in the nature of a postgraduate course in the treatment of disease, than a manual to be consulted when the diagnosis is determined but the treatment still in doubt. A further objection to the adoption of this work as a reference book might be raised from the point of view that nearly all that is taught in this book can be found in general text-books as well as in original sources. It would be a sad commentary on the amount of reading a medical man has done if he were to find much that was new or unfamiliar in all of the thousand pages of the text.

G. H. T.

Principles of Mental Hygiene. By Wm. A. White. Introduction by Smith Ely Jelliffe. N. Y.: Macmillan. 1917. Price \$2.00.

Now that the domain of the psychiatrist and alienist is no longer a field that is the peculiar property of the initiated few; now that medical men and women must reckon with the social variation from the normal as well as the physical variations; now that the public conscience is awake to the fact that there is a duty that is owed to those who are handicapped by inferior nervous or mental makeup, it is with genuine pleasure that such a book as this is welcomed. In language that is simple, clear, in a mode of exposition that is authoritative yet kindly, Professor White has given to the profession a volume that will open to many a delightful field in the medical world. Too many of our profession are neglectful of the social side of medicine. This may be through laziness, indifference or through lack of perception or of training, but this field can no longer be ignored. The study of our cases from the social aspect is as essential as that from any other point of view. Social problems are presented to the doctor more frequently than to any other, unless it be the spiritual advisor, whose place the doctor must so often fill. In this world of ours, conflict and adjustment, heredity and environment, stimulus and reaction, individual and herd relations, reason and instinct form the chief motives of our existences. Let us study these things; let us apply our knowledge to our daily round of cases; let us remember to treat the patient as well as the disease. This work is pecu-

liarily qualified to awaken the physician to his other duties to his patients, other duties than the almost mechanical investigation and treatment of diseased tissues and organs. There is no one who could not benefit by and derive inspiration from a reading of this little work, and the reviewer takes especial pleasure in giving it his unqualified recommendation. G. H. T.

Talks on Obstetrics. By Rae T. La Vake. St. Louis: Mosby. 1917.

This little volume is precisely what its author designs it to be—"Neither a textbook nor compend" of obstetrics, but a discussion of the most important problems giving a perspective that is extremely valuable to the student or the physician of limited obstetrical vision. Another point which the book attains is an attempt to eradicate individual faddism and to make procedures so rational and conservative as to become standardized. Under the first chapter on sepsis many important points with regard to prenatal care are brought forward. The subjects of the importance of rectal examination; technic of preparation and after care; and the technic of delivery are well covered. The recent view of the part played by foci of infection is given deserved consideration, and the treatment is most widely accepted by obstetricians. The salient points in eclampsia are presented and most suggestive theories are touched upon. The procedures are most sound. Under hemorrhage, the author has in a few pages given a most complete exposition of differential diagnosis and practice, and no point is missed in the prophylaxis of abortion. The prevailing view on the subject of Cesarean section and therapeutic abortion is maintained. The use of forceps when actually indicated and according to established rules cannot be too rigidly insisted upon. Version is favored rather more than the accepted tenet but one is warned against withdrawing the hand once introduced until the course of procedure is clear. The author's rules in obstetrics are all well worth adoption as a part of the creed of obstetricians. L. T.

Manual No. 2. Notes for Army Medical Officers. Edited by Lt.-Col. T. H. Goodwin, R. A. M. C., deals with the subject of Organization and Administration, War Surgery, Sanitation in War, and Notes for service on the Western Front. It takes up the subject of medical units and their relations to other branches of the service, Casualty Clearing Stations, Hospitals, Medical and Surgical Equipment, the wastage of War, Battle Casualties and many other topics of essential interest to the Army surgeon. It considers collapse and shock and the various treatments of wounds. It considers and illustrates the splints used; in fact, all that the Medical Officer should know in the War Zone. It is the result of the experience of our Medical Allies and represents the best guide for our own profession at the front. It is to be most heartily recommended. Publishers, Lea & Febiger, Philadelphia, Pa.

S. T. P.

Manual No. 3. Military Ophthalmics Surgery. By Greenwood, De Schweinitz and Parker. This little book deals with the various injuries which may affect the eyes in war times and their methods of treatment. It gives a full list of instruments necessary in the equipment of the eye surgeon. It also deals with infectious diseases of the eye and contains an interesting chapter on the examination of malingersers. This latter will undoubtedly be useful to examining boards as well as to the surgeon who is confronted by reconstructive problems. Publishers, Lea & Febiger, Philadelphia, Pa.

S. T. P.

American Addresses on War Surgery. By Sir Berkeley Moynihan, C. B., Temporary Colonel, A. M. S., Consulting Surgeon, Northern Command. 12mo. of 143 pages. Philadelphia and London: W. B. Saunders Company, 1917. Cloth, \$1.75 net.

This little book contains five papers read in America in October and November, 1917: Causes of the War, Gunshot Wounds and Their Treatment, Wounds of the Knee-joint, Injuries to the Peripheral Nerves, and Wounds of the Lungs and Pleura. It is written with an easy simplicity and a clinical logic that mark the English master. The chapters on wound treatment and on wounds of the knee are admirable. They give the essence of what three years of war and the sacrifice of numberless lives have evolved. Moynihan lays more weight on an early, careful and complete excision of contaminated wounds than on the various kinds of antisepsis;—of the Carrel-Dakin method he says: "In times of leisure the method is good; in times of war, with all the haste of war, it will often fail." He praises Wright's hypertonic salt packs and irrigations. The chapter on wounds of the knee gives clear indications for the different methods of treatment and decries the placing of drains in the joint. What is in the book is Gospel; we should recommend every surgeon to study it. L. E.

Guide to Organic Drugs. Ninth revision U. S. Pharmacopoeia. Third revision of National Formulary. Compiled and arranged by John S. Wright. Leather. Indianapolis: Eli Lilly & Co. 1917. Price 25c.

This is a handy little vest-pocket guide based on the third revision of the National Formulary. It contains in addition to a glossary of botanical and therapeutical terms, a conspectus of plant families and other information of pharmacological interest. L. E.

American Illustrated Medical Dictionary (Dorland).

A new and complete Dictionary of terms used in Medicine, Surgery, Dentistry, Pharmacy, Chemistry, Veterinary Science, Nursing, Biology, and kindred branches; with new and elaborate tables. Ninth edition revised and enlarged. Edited by W. A. Newman Dorland, M. D. Large octavo of 1179 pages with 331 illustrations, 119 in colors. Containing over 2000 new terms. Philadelphia and London: W. B. Saunders Company, 1917. Flexible leather, \$5.00 net; thumb index, \$5.50 net.

This is a very convenient desk Dictionary containing the latest medical scientific definitions in conjunction with considerable information on subjects of medical, physiological and anatomical and surgical interest.

It is bound in limp leather, very convenient in size and weight, and is to be highly recommended as a vade mecum of the practicing physician.

As a sample of its modernness we append the following words:

War Words.

ambrine	Leclainche-
brassard	Vallée serum
brilliant green	réforme
chloramine-T	tolamine
chlorazene	trypaflavine
flavine	trench back
javellization	trench foot

State Society

THE DEL MONTE MEETING.

About three hundred members were present at the annual meeting of the Medical Society of the State of California at Del Monte. The following officers were elected:

President, Dr. C. Van Zwalenburg, of Riverside; first vice-president, John H. Graves, of San Francisco; second vice-president, Dr. Ferdinand Stabel, of Redding; secretary, Dr. Saxton Pope.

One of the most important events of the meeting was the address by Major Jump, who is touring the United States in order to increase the enrollment of physicians in the M. O. R. C. and the U. S. Army. The quota from California during the coming year will call for nearly 400 physicians, and every man should question his own conscience to determine whether or not he should be one of this number.

The Constitution and By-Laws underwent some revision. Changes were necessitated to meet the altered conditions of the times and the new designs of the Council. The constitutional amendments were laid on the table until the next session, and the amendments to the by-laws were passed by large majority. One of the chief features of the changes in the latter was the elimination of all standing committees and the strengthening of the executive capacity of the Council and the Publicity Bureau. It is hoped by this means to establish a more effective working unit in the Society and a co-ordination of the various elements of the organization.

Another important act of the House of Delegates was the adoption of a resolution of the Council which exempts all men in active military service from Society dues and carries these men in full membership until discharged from duty.

The House of Delegates also voted in favor of a special war tax to cover the deficit of this loss of membership, and the Secretary was instructed to collect this tax of \$2.00 at the end of this present fiscal year. This is one of the legal assessments of the Society and must be made as faithfully as the usual State dues. Notice of this will be sent to each member later on.

A special feature in this State meeting was the offering of the Barbat prize and a committee was appointed by the Council to award this recognition for scientific work.

On the whole the meeting was one of vital importance in the way of organization, of very high scientific standard and adjourned in complete harmony.

NOTICE.

At the One Hundred and First Meeting of the Council of the Medical Society of the State of California, held at Hotel Del Monte, Monday evening, April 15, 1918, at 8:30 o'clock, on motion of Parkinson, seconded by Yates, it was unanimously

Resolved, That a notice appear in the next issue of the Journal, calling the attention of members who desire their special lines of practice included in the Roster, to send the desired information to the State Secretary before the 10th of May.

County Societies

ALAMEDA COUNTY.

The following program was presented at the regular monthly meeting of the Alameda County Medical Association held Monday evening, March 18, 1918:

1. The Treatment of Warts—A Series of One Hundred Cases. Dr. M. L. Emerson.

2. Differential Roentgen Interpretation of Lesions of the Digestive System. Mr. P. L. Ansell. Both papers were very interesting and were discussed by a number, including Doctors Edith Brownsill, Kate Van Orden, F. M. Loomis, M. L. Emerson and O. D. Hamlin.

Contracts have been let by the Board of Supervisors of Alameda County for the erection of a two-story nurses' cottage at the Alameda County Hospital at a cost of \$21,000. There will be an assembly room, library, kitchenette, head nurse's suite, two single and seven double bedrooms and five sleeping porches, laundry and trunk room.

Steam heat will be supplied each room from the main plant on the infirmary ground. The building is designed to comply with all the requirements of the State Bureau for buildings of this character.

Dr. P. E. Dolan of Livermore and Dr. H. A. Makinson of Oakland have both been called to the colors. Dr. Dolan is at Camp Kearny and Dr. Makinson at Camp Fremont. Dr. Milton H. Schultz has entered the Navy and is stationed at Yerba Buena. Major Stanley F. Berry has been down from Camp Lewis shaking hands with old friends.

The Alameda County Psychopathic Association held an open meeting Friday evening, April 5th.

Subject: "Care and commitment of Insane."

Speakers—Judge Chas. E. Snook, "Some Judicial Aspects"; Dr. Glenn E. Myers, "Some Medical Aspects"; Mr. Philip Carey, "Some Legal Aspects."

LOS ANGELES COUNTY.

Meeting of Los Angeles County Medical Association, March 7, 1918.

The president, Dr. Wm. Duffield, spoke about the excessive expenses of the Society for 1917 as shown by the Bulletin. He strongly urged that every member speak to his colleagues, who are not members, to join the society and thus make up the deficit. One hundred new members would wipe out our indebtedness. He gave an instance how a young practitioner was not appointed an officer because he lacked the prestige that goes with membership in the Society.

The Society's Telephone Exchange, he declared a splendid institution, although formerly he did not think so; be sure to make use of it.

Send names of those entitled to stars on the service banner to Dr. Nannie Dunsmore. Ask your soldier colleagues for letters relating to their experiences and duties in the service abroad.

The appointed committees are expected to do the work appertaining to their respective committees. Reunions of the officers and committeemen at a dinner several times a year will be continued.

Apropos the Receiving Hospital Committee, the president mentioned Drs. Haynes and Lobingier have taken hold of that work.

Woman Doctor to go to France.

Dr. Margaret Withey Farwell of Los Angeles has left for New York for preliminary preparation with settlement workers before sailing for France as a member of the Red Cross. She will be assigned to civilian relief work among women and children refugees in France. Dr. Farwell is a graduate and member of the faculty of the University of Southern California, and also has charge of the medical department of the Parent-Teachers' clinic. She was assistant house physician at the Santa Fe hospital.

To Fort Riley.

Lieutenant Geo. L. A. Hamilton has left for Fort Riley, Kan., to begin a three months' course in special military training. The last six months he has been at the base hospital at Camp Kearny at Linda Vista. He has been in the service since last September.

Public Health.

"Public Health" is a monthly bulletin of the Los Angeles City Health Department, published under direction of L. M. Powers, M. D., Health Commissioner. The January number contains a comparison of birth and death rates for 1915-16-17, monthly report for December, calendar for year's report, rules and regulations for the control and suppression of venereal diseases.

Accompanying are a set of resolutions passed by the Municipal League of Los Angeles urging every physician to cooperate with health authorities.

Spook Found Guilty.

Professor "Rollie" Jamison, arrested by police of the license squad for violating the city license ordinance, was found guilty in the police court March 13. He is said by the police to have a large acquaintance among influential spooks. Working behind a black screen, he told Sergeant McPhillips of the squad many interesting things about a brother that McPhillips didn't know he had.

One Hundred and Fifty Los Angeles Surgeons and Nurses Called for War Work.

Junior surgeons and hospital attendants, comprising the enlisted personnel of the army base hospital unit No. 35, entrained March 14th for Camp Kearny, to undergo a course of preliminary hospital training. Lieut. Frederick S. Ray, M. R. C., acting adjutant, took the unit to the camp. The staff of surgeons, composed of thirty-five graduate doctors are not to go until the unit is ready for service.

Life Endangered by Interrupted Operations.

Los Angeles was in darkness for nearly an hour about 7 p. m. on March 13, owing to the power being shut off by strikers. Business was delayed, social functions prevented, theaters inconvenienced, surgical operations in several cases hung poised in the midst of delicate life and death operations.

Former Los Angeles Physician is Ordered Interned.

Dr. Frederick Hiller has been ordered interned as a dangerous alien enemy. Together with twenty-two others, he will be taken south. He admitted communicating with Germany through Switzerland, employing invisible ink, and had planned to return to Germany under the alias of John Ferrari. He formerly practiced medicine and manufactured a food product in Los Angeles. His wife is said to be living in Seattle.

Physicians Entertained.

Mrs. Eva Cramer Bresler entertained March 14 in honor of the physicians in the base hospital at San Pedro. Among those present were Capt. W. Kelly, Lieuts. A. W. Clark, Best J. Thompson, W. Blackard and E. W. Walker; Patrick and Terrence Casey, J. L. Hamilton and C. A. Lenzen, U. S. N.

Modern Surgery of War.

The Santa Monica-Ocean Park Chamber of Commerce had two hundred members and guests listen to Dr. Andrew Stewart Lobingier on "Modern Surgery in the War and German Propaganda" at a banquet in the Merritt-Jones Hotel on March 18. **Christian Science Board Answers Critic's Attack.**

Resolutions adopted at the Bible Institute to bar Christian Scientists as army chaplains were answered by Henry Van Arsdale, chairman of the Los Angeles Christian Science Committee on Publication. He says that reasons assigned in the resolution, that Christian Science denies the reality of ills of the flesh, and that it opposes the fundamentals of Christianity, are due to misconception and untruth. Pain and suffering, he says, are perhaps the most real things in human experience, but obviously being no part of the Divine. Christian

Science teaches that they do not possess the quality of eternality or of perfection.

Dr. Woodroffe in France.

Dr. Helen Woodroffe, former secretary of the Santa Monica Bay Red Cross Chapter, who now is in Paris for the society, writes to the Santa Monica Chapter that at her hotel the concierge walks with a limp, and has the lapels of his coat covered with medals. The head waiter walks decidedly lame. Another blessé was hobbling about on a frame work with both feet amputated just a little above his ankles. The blind are learning to typewrite, read, make bead ornaments, rugs, etc.

Signal System Wanted.

Dr. L. M. Powers, city health commissioner, has asked the council for an appropriation of \$100 to install a warning signal system on the stockade around the Los Feliz hospital. The signal system is intended to prevent escapes of inmates.

Wanted Fourth Assistant Superintendent of Charities in Charge and Superintendent of Sylmar Sanatorium at a Salary of \$225 Per Month and Full Maintenance.

Secretary F. E. Doty of the Los Angeles County Civil Service Commission announces that the examination for above position will take place Wednesday, May 15, 1918, 8:30 a. m., Room 1007 Hall of Records, Los Angeles, and in the office of the San Francisco Civil Service Commission, San Francisco. After one year the salary is to be advanced to \$250 per month and full maintenance, and in addition there may be provided an unfurnished cottage with water, light, heat and house laundry. Under direction of the Superintendent of Los Angeles County Hospital, the superintendent of the Sylmar Sanatorium is to reside at the sanatorium and is to devote his or her entire time to the duties of the position. The position calls for specialization in the treatment of tuberculosis. Application of physicians and surgeons with special knowledge of tuberculosis can be made on blank forms sent by request to be filed three days prior to examination.

Dr. Leach Lectures to Boys in France.

Dr. Chas. N. Leach, first lieutenant in the medical reserve corps of the American Red Cross, military camp No. 1, sent as a souvenir a German trench helmet, taken from a prisoner, to his father, W. N. Leach of Inglewood. The helmet, with the mud of Flanders adhering, reached Los Angeles March 30. Lieutenant Leach is lecturing to soldiers three times a week. His service in Belgium gave him an insight into the German character and military machine so that his talks were of unusual interest to the boys.

Chinese Doctor in Jail on Drug Charge.

Dr. H. Ching, herbalist, and his clerk, Harry Knox, were lodged in the county jail March 30 by Dr. C. W. Montgomery, Federal narcotic agent, on a charge of violating the Harrison narcotic act. Twenty men, said to have been caught in Dr. Ching's establishment, were released when it was found that they were employed at a Pacific ship-building plant. They are said to be drug addicts.

Dr. Marxmiller Says Teuton Captives Are Sickly.

Dr. Harry Marxmiller of Los Angeles, serving in the British army medical corps, in a letter to E. G. Judah, chairman of the war donations board, asserts that German war prisoners are a sickly looking lot, ready to quit if they were given the opportunity. The doctor says that the folks at home can never know the hardships that are undergone by the men at the front. The Red Cross and the Y. M. C. A. are making the rough road a lot easier to travel. Tell the people of Los Angeles they can give until it hurts and then some more, and they will not be doing half their duty by the men who are cheerfully giving their lives in democracy's cause. Dr. Marxmiller expects to be transferred to an American unit this month. He appeals for greater support in Los Angeles of the third Liberty loan.

(Continued from last issue.)

Dr. Charles L. Allen dwelt on the neurological aspect of head injuries.

The importance of an injury to the head depends almost entirely upon to what extent the brain is involved. In all cases it is necessary to thoroughly study the symptoms from the medical point of view, but particularly is this important in the case of people picked up on the street with or without evidence of head trauma since, though the patient may have fallen and injured his head, loss of consciousness may be due to some other cause, such as alcoholism, opium poisoning, uremic or diabetic coma and organic disease of the brain.

Focal symptoms from the side of the nervous system are observed only when the lesion involves the motor region, the visual centers or the areas concerned in the speech mechanism, a large part of the brain consisting of the so-called silent areas, so that in many cases we have to depend exclusively upon the general symptoms of brain involvement.

An important feature of head injuries is the possibility of the onset of symptoms long after the trauma has occurred.

It is well-known that epilepsy not infrequently has its origin in injury to the brain. The so-called traumatic neuroses are very common sequelae and demand careful study to determine, if possible, how much is due to actual injury and how much to suggestive influences or to intentional simulation. It is very common to find that those who have suffered from head injuries develop great restlessness, insomnia and intolerance to alcohol, while the mental symptoms proper vary from slight confusion and irritability to entire change of character, in severe cases amounting to deep dementia. The medical treatment of brain injuries consist in measures to relieve shock when it is present, after this has passed away in confinement to bed, an ice bag to the head, non-stimulating diet, free purgation, with such sedatives as bromides and opium if needed. There should be a long period of quiet and avoidance of excitement before returning to work, and complete abstinence from alcohol. Patients are frequently brought to the hospital suffering from mental aberration with the statement that years before they had suffered an injury to the head. In many of these cases it is at once evident that the alleged injury has had nothing to do with the present mental condition and it is hardly necessary to say that unless there is some direct indication for a head operation such a procedure could at this late date offer no prospect of repairing a loss of function which in the nature of things has by this time become permanent.

Dr. C. W. Rand spoke on "Minute Pathology of Brain Injuries."

He said, among other things, that the pathology is not known. That there is a disordered physiology rather than a pathology. The delicate mechanism has been upset, and as the normal condition cannot be explained neither can the pathological. He dwelt on the spinal fluid and ventricles, and the secretion and absorption of the pachionian bodies by sinuses, venous circulation, and perilymphatic tissues, how to deal with edema after injury, for other causes than injury may give rise to edema. He spoke of the three "C's," that in **concussion** there is often no lesion found after death; that the integrity of the brain is disturbed so as to lead to unconsciousness; that **contusion** is a higher form of concussion, there being evidence of bruising: the microscope showing evidence of hemorrhage; there may be wide laceration with slight symptoms as in the "Crowbar case"; there is death if injury is in a vital spot as the tips of the temporal and bases of the frontal lobes; that it may occur at point of injury or on opposite side by contrecoup. He stated that concussion and contusion follow traumatism but **compression** does not necessarily do

so; the effects are similar; there are two kinds of compression, local and general; the first may give symptoms, the latter may be without local compression; that circulatory disturbance is the chief finding; the cerebro-spinal fluid is only compressible and is driven out by encroachment from without, the blood vessels may thus be encroached upon so that empty arteries result in anemia.

Discussion was led by Drs. Lobingier, Dudley, Brainerd and Hill.

Meeting of February 21, 1918.

Dr. Duffield presiding.

Dr. Henry W. Howard presented resolutions in honor of the late Dr. Henry N. Stehman, which were unanimously adopted.

Dr. Edward Avery Newton proposed that the ranks for the medical corps be advanced higher than Major. The plan was endorsed by the Society.

A "Case Report on Polycythemia," by Dr. Chas. L. Allen.

Dr. Charles L. Allen reported the case of an imbecile with polycythemia and symptoms of polyglandular disease.

This man, now 40 years old, had been mentally defective from birth, and was sent to the Psychopathic Hospital on account of antisocial tendencies and inability to take care of himself. He at once impresses one by the deep bluish red of his complexion, by his coarse, heavy features and by the great enlargement of his thyroid gland. The shape of his face and of his thorax is somewhat suggestive of actromegaly, but there is no enlargement of his extremities. A blood count showed erythrocytes on one occasion 9,025,000, on another 8,500,000, leucocytes 9,500. It was suggested that the polycythemia might be connected directly with a perversion of the function of the endocrine glands, since it is known that an excessive action of the thyroid stimulates the adrenal secretion and there is certain experimental evidence to show that in some animals at least, the injection of adrenalin produces a temporary polycythemia.

Dr. R. Wernik's subject was: "The importance to the Physician, Obstetrician and Surgeon of the Chemical Analysis of the Blood for Urea, Creatinin, Uric Acid, Sugar and Carbon Dioxide tension."
"Qui bene Diagnostat, bene curat."

Blood chemical analysis is of the utmost importance in the diagnosis and prognosis of diseases affecting the kidneys and in diabetes. These micro-chemical methods of blood analysis for urea, uric acid, creatinin, sugar and carbon dioxide tension of the blood, have been so simplified that any physician who will devote the necessary time and attention to these methods can make his own tests.

We can tell by estimating the carbon dioxide tension of the blood, the amount of acidosis present. This is Van Slyke's method and more accurate but not so simple as the Frederici apparatus for measuring the carbon dioxide tension of the alveolar air which is quite accurate except in conditions of congestions of the lungs.

Carbon dioxide tension in the blood or alveolar air means acidosis. In cases of diabetes mainly due to acetone and diabetic acids, in cases of nephritis due to the inability of the kidneys to eliminate acid phosphates. This acidosis in nephritis has been recognized by the writer for the past thirty years from the fact that in all cases of nephritis he found volatile ammonia present in the freshly passed urine, which could only mean that on account of a deficient alkalinity of the body fluids the cells were splitting up the nitrogen so as to furnish ammonia to neutralize the existing acidosis. It is for this reason that he has for so many years practiced and urged high retention alkaline enemas in the treatment of nephritis.

In diabetes only a blood test will show whether or not the patient is sugar free. Any sugar over 0.15 in 100cc of blood in a diabetic on a diet means

hyperglycemia whether or not there is sugar in the urine.

The obstetrician and surgeon, and frequently he is the better surgeon who knows when not to operate, can only derive benefit for themselves and their patients by having these tests made, as frequently there is an existing nephritis without albumin, casts of edema. On the other hand an apparently hopeless case, the urine containing large amounts of all albumin and numerous casts may be safely operated on if the blood examination shows that the kidney filter is only slightly impaired.

"Medical Legal Status of the Roentgenologist," by Dr. Albert Soiland.

This paper deals with the legal problems confronting the roentgenologist. The present unsatisfactory conditions which prevail whereby it is possible to serve a subpoena upon the busy practitioner, and compel him to leave whatever business he may be engaged in to spend the larger part of a busy day at court, testifying in some trivial damage case. Most of the cases quoted are of the ambulance-chasing variety, where the wily lawyer attempts for the fee of \$2.00 to get expert testimony. Failing to do so, he usually makes it very annoying for the doctor and consumes much more of his time than is necessary.

The object of this paper is to seek a remedy by changing the present antiquated laws, which permit of this injustice to medical roentgenologists in particular. It is the writer's belief that all Roentgen plates are the property of the roentgenologist, and that the latter is obliged to furnish a written report, a reprint, or a copy of the findings to the physician referring the case, who may also specify that the patient is to receive a copy.

The last subject of the evening was: "Case Report—The Birth of the Literary Infant—Watch Your Weight," by Dr. Lulu W. Peters.

The president, Dr. Duffield introduced Dr. Peters as the Chairman of the Public Health of California Federation of Women's Clubs, and commented upon her good work in health lectures and helping to raise the standard of milk, all without remuneration.

Dr. Peters reviewed with the medical audience her book entitled "Watch Your Weight," "Diet and Health with Key to the Calories." The book was distributed among the doctors, who secured copies. Attention of the meeting was called to the many points of interest, especially to the "Medical Trust" which Dr. Peters defined as a trust of education, the minimum standard of which consists of eleven years of training after the grammar grades, and that the League of Medical Freedom is really the league of medical ignorance. Dr. Duffield mentioned that the book could be obtained at any book store for 25c and that all physicians should stand behind Dr. Peters to push this propaganda.

Drs. Witherbee, Coe and others discussed the subjects.

MENDOCINO COUNTY.

Mendocino County Medical Society.

A regular meeting was held at Albion on March 30th in the office of Dr. Arthur C. Huntley. The meeting was called to order by the Vice-President, Dr. Carol L. Sweet. Present, Drs. C. L. Sweet, Arthur C. Huntley, F. C. Peirsol, Harper Peddicord and O. H. Beckman. Only one delinquent was reported by the Secretary. The Secretary was instructed to officially inform our Senators and Representatives in Congress that this Society urges them to actively support the bills for increase in the rank and percentage of physicians in the Medical Reserve Corps of the Army. In the scientific program each doctor made a short presentation of his subject for discussion. Dr. Huntley, "A Lame Back"; Dr. Peddicord, "Bronchial Cough"; Dr.

Sweet, "Wounds in General"; Dr. Beckman, "Herpes as a Symptom"; Dr. Peirsol, "Disease of Delinquency in the Payment of Doctor Bills." It was discussed in both its sporadic and epidemic form and was agreed it was one of the most dangerous of infectious diseases.

News About Medical Volunteers.

Assistant Surgeon R. H. Hunt, U. S. N. R. F., is on active duty on board the U. S. S. "Moccasin." Lieut. H. H. Wolfe is still at Allentown, Pa., Lieut. Raymond A. Babcock is very likely busy at the Presbyterian Hospital, Chicago, Dr. H. O. Cleland is ready for orders to active duty.

ORANGE COUNTY.

At the February meeting of the Orange County Medical Society, Dr. R. A. Cushman of Santa Ana read an interesting paper on "Meningitis." He reported several cases which have occurred in his own practice, and Dr. Zaiser, superintendent of the Orange County Hospital, added his reports of several cases which have come under his observation at the county institution. The value of spinal puncture as an aid to diagnosis and the use of Flexner's serum were ably brought out by the essayist and those who took part in the discussion.

The service flag of four stars was unfurled and now decorates the walls of the Society's rooms.

Captain W. Harold Wickett of Anaheim has been ordered to the Mayo Clinic at Rochester, Minn., for two months' instruction in military surgery.

The Society was favored at the March meeting by having as its guest Dr. A. S. Lobingier of Los Angeles, who gave an interesting evening on "The Diseases of the Liver and Bile Ducts." The lecture was illustrated by several colored drawings and was comprehensive. The doctor laid special stress on the necessity of an intimate knowledge of the physiology of the liver and its secretion in order to acquire a good understanding of the pathology. While he believed in cholecystectomy as being a sound surgical procedure, he believed that the surgeon should be conservative and should perform the operation only when there is a definite pathology to warrant it. At the close of the meeting a banquet was served at James' Cafe.

Dr. D. C. Balfour of the Mayo Clinic has been the guest of Dr. H. A. Johnston of Anaheim, recently.

The Fullerton Hospital has been operating for about three months and is enjoying a liberal patronage.

The regular meeting of the Orange County Medical Society was held at Santa Ana on April 2nd, about twenty members of the society being present.

The committee on publicity reported having had printed in the Santa Ana Daily Register a copy of an article by Dr. W. W. Keen. The expense of same was borne partly by individual members of the society and partly by the society as a whole.

The paper of the evening, entitled "Calcareous Degeneration of the Thyroid," with the exhibition of a large specimen, was read by Dr. H. A. Johnston of Anaheim.

The officers elected for the ensuing year are: President, Dr. H. E. Zaiser; vice-president, Dr. G. M. Tralle; secretary, Dr. W. C. Dubois; treasurer, Dr. H. S. Gordon; librarian, Dr. C. D. Ball.

Several members signified their intention of attending the state meeting.

SACRAMENTO COUNTY.

The Fiftieth Anniversary Banquet of the Sacramento Society for Medical Improvement was held at the Hotel Sacramento Saturday evening, March 16th.

It was just fifty years ago, March 17th, 1868, that this Society was organized. The first officers of the

Society were: President, Dr. Hatch; Secretary, Dr. Cluness. Dr. Cluness, now residing in Alameda, is the only surviving charter member of this organization.

The Toastmaster was Captain James H. Parkinson, M. R. C., while Dr. J. Wilson Shields, M. R. C., of San Francisco, delivered the address of the evening.

Dr. J. R. Snyder has recently been ordered to report for duty at the Letterman General Hospital.

Dr. S. E. Simmons has been critically ill with lobar pneumonia, but is now convalescent.

Dr. W. J. Hanna, who was formerly Major in the National Guard, and served in the recent Mexican expedition, has been appointed City Health Officer by Dr. G. C. Simmons.

SAN DIEGO COUNTY.

The last meeting of the County Society, March 23rd, was a complimentary dinner to some of the ranking officers at Camp Kearny, and was entertainingly addressed by Lieut. Col. Alex. Murray, chief surgeon at Camp Kearny, and Major J. W. Moss, on duty at the base hospital. These gentlemen spoke with authority of the duties, responsibilities and opportunities for the medical man of the army service.

Articles of unusual merit presented at recent meetings of the society were by Dr. P. M. Carrington on "The Indigent Tubercular," and that by Dr. A. J. Thornton on "The Physician in the Public Schools."

Captain F. J. Grant left this week for Long Island as medical examiner in the aviation department of the army.

Dr. C. M. Hosmer, commissioned as junior lieutenant, is on duty at the naval training camp, San Diego.

Dr. Otto G. Marsh, also junior lieutenant in the navy, left for a northern port on the 6th of April.

The San Diego Diagnostic Group Clinic by reason of the inroads made by the war upon its staff has temporarily suspended and turned over its building to Medical Advisory Board No. 2, State of California.

The San Diego County Society is planning to entertain the spring meeting of the Southern California Medical Society the latter part of May.

Dr. Geo. B. Worthington has received his commission as captain in the army.

From the San Diego County Bulletin.

When the democracy of the future shall have been achieved, children will not be fed into the system of education, however admirable it may be in itself, without regard to their individual aptitudes and citizen-making capacity. We will no longer boast that we have given them all an equal chance by treating them as billits of pig iron. The sky line of their personality will have been accurately surveyed, the contour lines of their endowments will have been plotted, and their education will have been fitted to them as individuals in light of their future service to themselves and to society. Then will the State receive the loyalty now only hoped for in the dreams of the dreamer, for they will be the State.

PROCEEDINGS OF THE SAN FRANCISCO COUNTY MEDICAL SOCIETY.

During the month of March, 1918, the following meetings were held in the rooms of the Society, corner of Bush and Hyde streets, San Francisco:

Section on Medicine—Tuesday, March 5th.

1. Report of case of gangrene of the foot. S. A. Goldman.
2. A case of osteitis deformans. H. D'Arcy Power.

General Meeting—Tuesday, March 12th.

1. Report of case showing ill effect of drugs before operation. W. P. Willard.

2. Intestinal obstruction following Caesarean section. R. Knight Smith.

3. Report of radical operation, and exhibition of specimens of diverticula of the bladder. Frank Hinman.

4. Skull cases, with demonstration of patients. Leo Eloesser.

5. Pulmonary tuberculosis as a factor in the National Army. Philip King Brown.

Children's Hospital Clinical Evening—Tuesday, March 19th.

1. Treatment of fractures of lower end of the humerus; demonstration of cases. E. K. Willits and M. I. Judell.

2. The care of contagion in hospital. W. E. Musgrave.

3. The hydrostatic reposition method of Hirschsprung in acute intussusception. Its use together with laparotomy. Langley Porter.

4. Hematocele in pelvis, not of extra-uterine origin. A. J. Lartigau.

Mary's Help Hospital Clinical Evening—Tuesday, March 26th.

1. Demonstration of eye cases. M. W. Fredrick and P. de Obarrio.

2. Hipjoint disease; illustrated with X-ray plates. C. C. Crane.

3. Statistics from the Maternity Department of Mary's Help Hospital for the year 1917. T. D. Maher.

4. Cataract extraction. M. W. Fredrick.

5. Two cases of megacolon. Illustrated by lantern slides. A. S. Keenan.

6. Radiograms of gastro-intestinal cases. P. H. Luttrell and J. J. Blach.

TULARE COUNTY.

Regular monthly meeting was held at Visalia April 3, 1918. Discussion was had regarding the establishment of the proposed tuberculosis sanitarium for Kings and Tulare counties at Springville, where the county has recently purchased a desirable site. Drs. Melvin, White and Preston were appointed a committee to represent this society in a conference with the County Supervisors and a representative of the State Board of Health to co-operate in establishing an efficient and satisfactory institution.

The matter of improvements, present and proposed, at the County Hospital were also discussed.

Dr. Nauss, District Health Officer, from Fresno, presented a paper setting forth the provisions of the enabling act whereby health districts of convenient size might be incorporated and maintained for the effective and thorough control of health conditions in all communities desiring them.

The prevalence of an unusually extensive and severe epidemic of measles throughout the county, presenting many uncommon sequelae, was a topic of general conversation by all who were present.

Correspondence

PHYSICIAN WANTED.

Santa Rosa, Cal., February 18, 1918.

To the Editor:

Rev. C. W. Baker, Missionary at Orleans, in the northern part of Humboldt County, has written me, asking if it is possible to secure a physician for that community, the nearest physician being twenty or thirty miles away on the Hoopa Indian Reservation, and is not thought very highly of.

They have secured a monthly subscription list of \$50.00, and the adjacent community, namely, the Forks of the Salmon, have promised to do as well, but Mr. Baker thought that about \$25.00 was about all that could be expected from there. They feel sure the county would aid in the pay of

the physician, and they are trying to secure help from the Government.

If you could give this request publicity in your journal, it would be appreciated.

Yours very truly,

ALLEN F. GILLIHAN, M. D., Santa Rosa,
District Health Officer, North Coast District.

Military News

IMPORTANT PARCEL POST NOTICE.

The attention of the public is called to the fact that every pound and every ton of parcel post which is sent from the United States, but which can be bought by the soldiers in France, forces off the ships, ammunition and other needed war materials. The immense volume of parcel post sent to France containing articles which can be purchased cheaply by the soldiers in France, and which are not usually shipped from the United States but are obtained in Europe, principally from Spain, Switzerland, and Italy, is shown by the fact that an investigation of 6000 sacks of parcel post disclosed 3874 pounds of candy, 1332 pounds of chocolate, 1327 cakes and 2838 packages of chewing gum.

During the month of February the volume of parcel post sent to the troops in France occupied 120,000 cubic feet of space on the ships. This would be a slice of cargo space 600 feet long, 20 feet wide, and 10 feet high. The demand on tonnage of the railroads in France is so great that it frequently requires days before enough cars can be furnished to move the mail from the port to the interior of France. The number of soldiers is to be greatly increased and the amount of mail and war material will increase accordingly, and to meet this condition urgent suggestions are being made to reduce the size of parcel-post packages and to eliminate a large quantity of parcel post. In view of this situation, it becomes the patriotic duty of the people in this country not to send to the soldiers in France eatables or any other character of articles which can be bought from the Army or the numerous recreation centers that are established wherever troops are encamped.

In the way of smokes, there are twenty-two varieties of cigarettes, from Pall Mall to Sweet Caporal.

There are seven varieties of jams, besides seven kinds of soft drinks, from grape juice to tea.

The list of things which the boys in France can purchase at these recreation centers may be summarized as follows:

Biscuits, books, brushes, bouillon, candies, candles, canned goods, holiday cards, chewing gum, chocolate, cigarettes, cigars, combs, dental creams, various soft drinks, flashlights, fruit, handkerchiefs, heaters, jam, knives, leather goods, malted milk, condensed milk, evaporated milk, mirrors, nuts, pencils, pipes, razors, shoe polish, shoe laces, soap, sponges, tobacco, towels, and woolen gloves.

SERVICE TO MEN EN ROUTE.

Every transport carrying American soldiers abroad is to have on board representatives of the home-service section of the Red Cross to look after the comfort of the departing men.

These home-service men will have a two-fold opportunity and duty: First, to learn, by personal conference, the anxieties of the soldiers on board and to forward knowledge of these to our department, and, secondly, to send communications from the man in the service to his family. The soldiers in the camp are not told very long in advance that they are to go abroad, as this is not wise

from a military standpoint. The men have very little time to communicate with their families and friends before leaving. If on the voyage there is some one with whom they can talk over family matters and by whom they can send word to their families they will travel with lighter hearts and be ready to give the Red Cross opportunities to help.

At the request of the United States Army the American Red Cross has just arranged to install with all American troops now engaged in actually fighting the Germans a special front-line service. This is a development of the front-line canteens, through which the American Red Cross has during the past six months served more than 1,000,000 French poilus with hot drinks and, above all else, a friendly boost right up in or near the trenches themselves.

Today the Red Cross has fifteen rolling canteens behind the lines. From these canteens are sent forward daily, often in the small hours of the night, fifty or more large receptacles containing hot drinks. These are served free to the men going on or just coming off duty. The work has proved itself to be of such value to the French that the American Army has asked the Red Cross to have this service directly in touch with the medical relief stations nearest the front. The work is often done under heavy shell fire and requires men of great bravery and sympathy.

VOLUNTEER MEDICAL SERVICE CORPS.

Dr. Franklin Martin, chairman of the general medical board of the Council of National Defense, has appointed the following committee of the general medical board which will constitute a central governing board to handle the general administration of the Volunteer Medical Service Corps: Dr. Edward P. Davis, Philadelphia, president; Dr. Henry H. Sherck, Pasadena, vice-president; Dr. John D. McLean, Philadelphia, acting secretary; Dr. Edward H. Bradford, Boston; Dr. Truman W. Brophy, Chicago; Dr. Duncan Eve, Nashville; and Dr. William Duffield Robinson, Philadelphia. Dr. Martin and Dr. F. F. Simpson, vice chairman of the general medical board, are members ex-officio of the new central governing board.

The Volunteer Medical Service Corps aims to enlist in the general war-winning program all reputable civilian physicians who are ineligible to the Medical Officers' Reserve Corps and who can not serve in camp, field, or base hospital because they are over 55, have slight physical infirmity, or are needed for public or institutional service.

It will be an organization of doctors at home "to do something when there is something to do" in response to calls from the Surgeon Generals of the Army, Navy, or Public Health Service, General Medical Board, Council of National Defense, or other duly authorized departments or associations.

Applications for membership may be sent to the Council of National Defense, Eighteenth and D streets, Washington, D. C.

REVIEW OF WAR SURGERY.

There has just been prepared in the office of the Surgeon General a new pamphlet Review of War Surgery and Medicine (March 1918, Vol. I, No. 1). According to the editorial note this review is to appear monthly and to be devoted to abstracts of war medical literature. This little pamphlet will furnish the medical personnel of the army abstracts of original papers of importance, necessary information in a short compass, and prompt publication of reports which otherwise might not gain circulation.

Department of Pharmacy and Chemistry

Edited by FELIX LENGFELD, Ph. D.

A. M. A. COUNCIL ON PHARMACY AND CHEMISTRY.

The report of the Council on Pharmacy and Chemistry of the American Medical Association is published regularly in the Journal of the A. M. A. and therefore need not be reprinted in this Journal. The reports are full of meat and they should be read carefully by every practitioner. A review of these columns from time to time may prove not uninteresting.

Among the products endorsed by the Council: Barbital, Chlorcosane and Procaine.

CHLORCOSANE. Chlorcosane is a solvent for Diachloramine-T. Both the label and the statement of the Council regarding Chlorcosane, though true, are misleading. The label reads "chlorinated and liquefied paraffin," and this, as well as the statement of the Council would lead the ordinary reader to assume that Chlorcosane contains available chlorine. This is not the case. A chlorine carrier, like diachloramine-T, dissolved in a paraffin oil is liable to replace some of the hydrogen in the paraffin by chlorine, at the same time forming Hydrochloric acid. If the hydrogen in the paraffin has already been replaced by chlorine, such a reaction is impossible and the solution will probably be very much more stable. Chlorcosane is simply such a paraffin in which hydrogen has been replaced by chlorine and though it contains 30 per cent. or more of chlorine, it is no more a chlorine carrier than is chloroform. It should, therefore, be borne in mind that Chlorcosane is, at best, simply an inert solvent.

BARBITAL. Barbital is the official name for Diethyl Barbituric Acid, which has been generally known under the arbitrary name of Veronal. Barbital is manufactured in this country under license from the Federal Trade Commission, but this license does not carry with it the right to use the name Veronal, which is the property of two concerns that were marketing this product before the present war. The name Barbital includes Veronal, but Barbital marketed by any but these two firms cannot be labeled Veronal. It is to be hoped that the physician will use the official name Barbital instead of Veronal. He will thus do a patriotic act and, in addition, may help to stop the present excessive use of Veronal. It has been claimed that Veronal is not a habit-forming drug, but there certainly are those who believe they cannot get sleep without the use of this drug, and some of them use it to excess. Everybody knows the name Veronal and if the physician prescribes Veronal, even if he marks his prescription not to be repeated, the patient knows what he is getting as he usually reads the prescription, and he can obtain more at the nearest drug store. If the physician will write Barbital, a name which is unfamiliar to the public, will order his prescription not to be repeated, and will use capsules instead of tablets, he can watch his patient much more closely, and if he finds it necessary to have the prescription repeated, he may substitute some sugar and milk for some of the Barbital, and thus gradually wean his patient from the use of the drug.

PROCAINE is the official name for Novocain.

In its propaganda for reform the Council calls the attention of the physician to the following: Phenalgine, Ammonal, Camphophenique, Basey Bread, Fellows Syrup, Syphilidial, Bellans and Antiphlogistine.

Phenalgine and Ammonal are not chemical individuals but mixtures whose chief medicinal ingredients is acetanilide. At present both are dead in this locality—but there is no telling what will happen when the detail man comes around again.

Camphophenique, as pointed out over ten years ago, is not composed of approximately equal parts of phenol and camphor, but consists of about one part phenol, two parts camphor and two parts paraffin oil. A similar mixture may be prepared by the druggist if the physician finds the ordinary camphorphenol escharotic. This is usually made of one part phenol and two parts camphor. A mixture of one part phenol and three camphor seems perfectly safe without any causticity.

The Council considers Fellows Syrup of the Hypophosphites an inelegant preparation not equal to Compound Syrup of Hypophosphites N. F. The hypophosphites seem to have no specific action and do not supply phosphorus to the tissues. There is no objection to the use of hypophosphites of iron, manganese, quinine, strychnine, ammonium or calcium but sulphates or chlorides are just as good.

Basey Bread, recommended as an obesity cure is Graham bread at \$1.00 a loaf. With bread at \$1.00 a loaf, obesity would soon be a mark of wealth and distinction, as in China.

Bellans makes more extravagant claims than even other preparations of papain, pepsin, etc., and may do harm by inducing the reader of its advertisement to overindulge in indigestible food.

Syphilidial has not yet reached us. It seems not to be what it claims to be and should be investigated carefully before using.

The Council has studied the best way of giving Bicarbonate of Soda. It recommends that the bicarbonate be dissolved in a considerable quantity of plain or carbonated water. It suggests as an improvement the addition of a little sugar and lemon juice. Of course the physician who orders bicarbonate in this way will see that an excess of soda is used but the layman is apt to overlook this and thus get a pleasant lemonade with a little citrate of soda. Perhaps the Council intended in this way to stop the indiscriminate and often injurious use of bicarbonate of soda.

SAVING GRAIN, SUGAR AND GLYCERINE.

The Pharmacopoeia Committee of Great Britain has issued a War Pharmacopoeia which thereby becomes the standard in that country. It eliminates, as far as possible, sugar, alcohol and glycerine. A similar movement has been started in this country. It was the main topic at the meeting of the Minnesota Pharmaceutical Association on February 6th, 7th and 8th. The discussion started with a paper by Mr. F. A. Upshar Smith, in which he proposes a large number of substitute formulae.

Every American must feel interested in the conservation of our grain, sugar and glycerine, but we must also conserve our man power and the material saving may be attended with such a waste of man power as to be really a loss. The formulae in the United States Pharmacopoeia and most of those in the National Formulary are the results of months of laboratory work and years of experience. The substitute formulae certainly are not better than those in use and, in most cases, are not so good. It would not be fair to the public nor to the pharmacists to take snap judgment and to adopt these formulae without a thorough test, and this would take months and perhaps years. The difficulty might be overcome by adopting the British War Pharmacopoeia, but even then, considerable work would be necessary to adapt this book to American conditions. Furthermore, there seems to be no provision of law short of Congressional interference that will permit of a substitute for the present standards. The committees meet every ten years and, their work accomplished, they dissolve. There can be no new committees then until 1920 unless Congress passes the necessary legislation creating such committees to serve at once and declaring that their work shall constitute the standards. But even could these

changes be adopted at once, it is a question whether they would be desirable. They would give rise to needless confusion and to very considerable expense on the part of the pharmacist.

It is difficult to say how much sugar, glycerine and alcohol are used in legitimate pharmacy. Sugar, undoubtedly, less than 10,000 tons. Alcohol, less than 4,000,000 gallons, and glycerine about 2,000,000 pounds. The sugar represents about one day's consumption of the United States, and if every adult in this country will use only one small piece of sugar less once a week, the saving in a year will be considerably over the 10,000 tons used in pharmacy. The alcohol is about 2 per cent. of the total amount distilled in 1916, and represents 800,000 bushels of grain, a negligible factor in a crop of over a thousand million bushels. Furthermore, the sugar and alcohol are not wasted. They are easily assimilated and undoubtedly act as food in many cases where food is needed.

Mr. Smith advocates the use of infusions, decoctions, pills and powders instead of tinctures, etc. Here we have a tremendous waste of man power. Infusions take time, they are inelegant and, as a rule, inaccurate. But the time element alone is so great that the apparent saving becomes a waste. Then, too, the comfort of the patient must be considered. A sick man should be given his medicine in as palatable a form as is possible. He can, of course, take nasty medicine, but he will not if he can help it, and often the revulsion of feeling will cause the medicine to lose some of its efficacy. This is particularly the case with children, and it, therefore, would be a mistake to eliminate altogether, the pleasant medicines now in use.

Glycerine could probably be replaced in all internal medicaments by glucose, and although it would not be strictly legal, it is probable that a proclamation to that effect issued by the Secretaries of Agriculture, Commerce and the Treasury would be accepted by all food officials.

There can be no doubt that the physician does, at times, prescribe rather more sugar and alcohol than are really necessary, but if he will watch things and use medicated waters as far as possible, it will, undoubtedly, help to conserve the resources of the country.

The Food Administration heartily endorses this movement and has sent letters to editors of medical and pharmaceutical journals asking that they use their influence to promote it. It seems probable, however, that the officials of the Food Administration have not carefully considered the main difficulty, the waste of man power when infusions, pills, powders and capsules are prescribed extemporaneously.

SALE OF EXPLOSIVES.

THE FEDERAL EXPLOSIVE ACT forbids the sale to an unlicensed person of over one ounce of an explosive or chemical that may be used in the manufacture of an explosive. The list includes nitric acid, potassium nitrate, sodium nitrates, silver nitrates and potassium permanganate. The physician can purchase one ounce nitric acid or eighty five-grain permanganate tablets but no more at one time unless he first takes out a license. Licenses may be obtained from one of the licensing officers on personal application and payment of 25 cents. The licensing officers for San Francisco are Miss Edith Burnham, Phelan Building, and Harry F. Sullivan, Humboldt Bank.

Licenses once granted are good until revoked, but a certified copy costing 25 cents must be deposited with each dealer from whom the licensee obtains supplies. Probably most physicians will be satisfied to purchase the above chemicals in small quantity as this can be done without red tape.

State Board of Health

April Meeting.

The State Board of Health met in Sacramento on April 6th, 1918. The members present were: Dr. George E. Ebricht, President; Dr. F. F. Gundrum, Vice-President; Dr. Edward F. Glaser, Dr. Adelaide Brown, and Dr. W. H. Kellogg, Secretary.

The following resignations were accepted: John H. Müller, laborer, and Miss Lillian R. Jones, stenographer in the Morbidity Division. Leaves of absence were granted as follows: Miss Elizabeth N. Pack, R. N., Assistant to the Director of the Bureau of Registration of Nurses; Mrs. Berenice Perrett, stenographer in the Bureau of Foods and Drugs, and Miss Marian Lynne, Social Service Director in the Bureau of Venereal Diseases.

The following appointments were made: Rodney F. Afsatt as Inspector to assist in the mosquito and malarial survey; Miss Lillian M. Hall, as part-time stenographer; Miss Sarah Goldstine, as general clerk in the Morbidity Statistics Division; Victor Burke as part-time bacteriologist for the purpose of analyzing milk from wagons supplying Camp Fremont, and Miss Blanche Folsom, temporarily as assistant to the director of the Bureau of Registration of Nurses.

A communication was read from Dr. D. W. Montgomery of San Francisco suggesting the conservation of lard by the use of petrolatum in its stead in the manufacture of pharmaceutical products. It appeared that a very definite saving of fat would result in the following out of this suggestion, and it was the sense of the Board that physicians should aid in its conservation by the acceptance of the substitute in such products as zinc oxide ointment.

Dr. W. C. Billings of the United States Public Health Service, and Medical Officer in charge of the plague eradication work in California, appeared at the meeting and stated that he had received word from the Surgeon-General that the Government's appropriation for this work in California would be reduced on May 1st to a sum which would practically mean the discontinuance of this work unless the State saw fit to replace the loss by a special appropriation.

The Director of the Bureau of Registration of Nurses presented an outline of changes to be made in the schedule of studies required in training schools for nurses. The demands of the army for nurses are such as to make it absolutely necessary that all means possible be adopted to facilitate the training of nurses and increase the output of schools for nursing. The requirement adopted in April, 1916, providing that applicants must present evidence of having completed a four-year course in an accredited high school, or other institution of standard secondary grade, was modified so that the theoretical preparatory course may be obtained in an accredited college, junior college, high school or in a private school of approved secondary standing or in a school of nursing, and that this portion of the course must include the required subjects of chemistry, one unit, biology and physiology, one unit, nutrition and cookery, one to two units. This preparatory training will carry a weight of six months' credit on the three-year course. The professional training, however, must be obtained in an accredited hospital or hospitals or institution for the care of the sick approved by the State Board of Health, and shall consist of experience in medical, surgical, obstetrical patients and of sick children. It was further decided that graduates with a degree of a recognized university will be given credit of one year.

A large number of successful contestants in the recent examination for the title of "Registered

Nurse" was presented by the Director. By resolution the title was conferred upon them.

A resolution was passed to the effect that the Board of Health recognize the right of women to compete with men in any examination for State District Health Officer which may be held.

Dr. Irvine, Director of the Bureau of Venereal Diseases, made his last appearance before the Board, presenting his resignation as Director of the Bureau, which action he had taken in accordance with his original program of serving in that capacity only temporarily, as he is to return to Minnesota where he will take charge of the new Bureau of Venereal Diseases under the Board of Health of that State.

Upon the recommendation of the Director of the Bureau of Sanitary Engineering, several temporary permits for the operation of swimming pools in various parts of the State were granted. A set of regulations governing the use of sewage for the irrigation of garden products was adopted. In brief, these forbid the use of raw sewage, septic or Imhoff tank effluents or similar sewages for the irrigation of vegetables or fruits which may be eaten in the raw state, and defining conditions under which the use of such sewage may be used in other cases.

There was present the usual number of persons cited to appear before the Board for violation of the Food and Drug law, a full hearing being given in each case before decisions regarding future action were made.

W. H. KELLOGG, Secretary.

Obituary

F. DUDLEY TAIT.

The death of Dr. F. Dudley Tait in San Francisco on February 26th marked the passing of a forceful, and in many ways remarkable personality. Brilliant mental attainments, keen and enthusiastic appreciations of scientific medicine, and unselfish devotion to the cause of higher medical education loom large amid the stress and movement of his professional activities of more than a quarter of a century.

Dr. Tait was born in San Francisco in 1863 of English-Scotch ancestry. His father was a pioneer educator of this State, at one time superintendent of public schools of San Francisco, and later Professor of Latin in the old College of California. After some preliminary schooling in his native city, Dr. Tait was taken abroad, studied for a short time in England and Switzerland, and completed his academic education in France with the degree of B. S. He then returned to this country, took a medical degree at Bellevue Medical College and practiced for a short time in Kansas City. Returning to France he again followed courses in medicine and finally received the medical degree of the University of Paris in 1889. He came to San Francisco in the same year, practicing his profession here until the time of his death.

The influence of his European training was obvious, and unquestionably profoundly affected his intellectual and emotional outlooks on life. This was evident not only in those independent points of view so eminently French, which were so characteristic of him, but even to a more noticeable degree in those outward manifestations of manner which we are wont to associate with the Gallic temperament. His professional interest and work were no less colored by the same influence; indeed, he probably remained to the very end the most conspicuous exponent of French medicine and surgery in the West.

During the earlier years of his career in San Francisco Dr. Tait was chief surgeon of the French Hospital and also for a time was attending surgeon at the Woman's Hospital. More recently he was connected with the Experimental Research Laboratory of the Affiliated Colleges, University of California. He was also a member of the Board of Medical Examiners of this State for eight years, of local medical societies, the Société de Chirurgie of Paris, the Western Surgical Association, and the American College of Surgeons.

Dr. Tait's professional reputation rested on firm ground. He was a daring and skillful operator possessed of a ready grasp of clinical problems and a critical enthusiasm. His knowledge of surgery was most comprehensive, based on a thorough acquaintance with its literature. He was a man of indefatigable energy, restless in the search for knowledge, impatient of compromises, and intolerant of lowly accomplishments. Yet he was the most stimulating of men; again and again he has placed his time, knowledge and purse at the disposal of those who came to him for advice and assistance. No trouble or inconvenience was too great for him once he was convinced of the sincerity of the applicant.

Although not a voluminous writer Dr. Tait made some substantial contributions to clinical and experimental medicine. His papers on The Recurrence of Hydrocele After Radical Operation, The Eversion of the Tunica Vaginalis as a Remedy for Hydrocele, published many years ago, and The Experimental and Clinical Notes on the Sub-Arachnoid Space, were largely inspired by purely clinical considerations. The more ambitious paper on Electric Sleep, published in conjunction with the late Dr. Raymond Russ, was based on the studies of Laduc of Nantes. His interest in the surgery of the respiratory tract was reflected in his paper on The Control or Elimination of Pneumo-thorax in Pleuro-Pulmonary Interventions; and one of his last contributions was on Fibrous Atrophy of the Parotid Gland with Special Reference to the Treatment of Salivary Fistula.

Years ago Dr. Tait ardently took up the cause of higher medical education. As a member of the Board of Medical Examiners he largely sponsored and furthered the legislation which placed the medical law in California upon firm ground. Few men have given more thought to medical education in general, and his views regarding undergraduate instruction should command respectful consideration. He urged medical faculties "to abandon the role of precedent worshippers, extend the medical rather than the pre-medical curriculum, cease developing the students' memorial powers, stop training parrots, get rid of antiquated dictionary stuff, abolish the monastic system of examinations, and thus eliminate the large element of lottery, lead the student to the bedside at a much earlier date, devote three-quarters of the curriculum to clinical work, make the teacher responsible for the student, restore the old-time close relation between the teacher and student, and thus contribute to the primary aim of education, the formation of character and intellect."

Though unable on account of his illness to practice medicine in the closing months of his life he nevertheless maintained his interest in medical affairs to the very end. The war had aroused in him an enthusiastic appreciation of its surgical problems and his great interest in the subject is reflected in the large correspondence which he maintained until his death with leading surgeons of the world, notably French confrères of long acquaintance. While accepting with stoic resignation the inevitable consequences of his malady, he possibly regretted beyond all else his inability to join his friends, la-bàs.

A. J. L.

FRANK W. THOMAS.

Dr. Thomas died at his home, 441 Harvard street, Claremont, January 12, 1918, of gastric carcinoma, and was buried in Oak Park Cemetery, Claremont. He was born in Dublin, Ohio, September 4, 1853. His mother, nee Laura Hutchinson, was also born in Dublin, Ohio, on January 25, 1819, and his father, Daniel W. Thomas, was born in Columbus, Ohio, in 1817, both of Welsh and English ancestry.

Dr. Thomas was married to Miss Mary Lee on June 20, 1881. His widow and his daughter, Miss Charlotte Josephine Thomas, who was born in Marion, Ohio, survive him.

For his preparatory schooling, Dr. Thomas attended the Wesleyan University of Ohio, receiving his A. B. degree in 1878 from Wooster University. His professional education he received in the Starling Medical College, Columbus, Ohio, graduating as M. D. in 1880. He did post-graduate work in the New York Polyclinic, 1901, and attended lectures and clinics at Rush College several times. He was a frater in Beta Theta Pi, Wooster University, Ohio, 1874; a Knight Templar, a Master, Blue Lodge, Marion, Ohio, 1885, for four years; a High Priest in Chapter, Marion, Ohio, 1893-95; an Eminent Commander of Commandery, Pomona, California, 1910. He was a member of the Los Angeles County Medical Association and one of its councilors, representing Pomona, at the time of his death; he was also a member of the California State Medical Society and a Fellow of the American Medical Association. From 1914 to 1915 he was president of the Southern California Medical Association. Besides his professional affiliation, he was also president of the Pomona Valley Telephone Company from 1906 to 1908.

Dr. Thomas practiced medicine in Dublin, Ohio, 1880-1882; in Marion, Ohio, from 1882 to 1897, and

in Claremont, California, from 1899, when he received his license, to 1918.

Dr. Harry M. Voorhees pays the following tribute: "By the death of Dr. Thomas I lose a very dear and esteemed friend whom I have known intimately for years. He will be greatly missed in his community, where he was very active to promote social and civic improvements; a student of medicine, honored by his colleagues, ever ready and willing, even in his declining days, to assist suffering humanity and cure their ills."

Dr. Joseph K. Swindt writes: "Dr. Thomas will be remembered and revered for his remarkable services to the profession itself. One of the founders of the Hospital Association, he had the honor of sending in the first patient, was the first doctor to act as president of the Board of Directors, and by his courage and energetic persuasion was the prime moving spirit in the work which accomplished the erection of Pomona's splendid new hospital building. As Dean of the Faculty of the Training School for Nurses and as Councilor for the Pomona Branch of the County Medical Society his wisdom, open-heartedness and generous nature were responsible, in a large measure, in uniting the profession of the valley in a lasting fellowship which has seldom been equaled in any community."

Dr. Elmer E. Kelly, in a few sentences, says: "Dr. Thomas' most salient traits of character were loyalty and faithfulness to duty. As a man in the community he took high rank because of his business sagacity and foresight. As a physician he reached his highest worth. His most loyal and admiring friends were his patients, and they will ever hold in grateful remembrance his skillful and tender ministry."



FRANK W. THOMAS.

INTERNATIONAL SURGICAL SOCIETY.

It was agreed at a meeting held in Paris on November 3rd, 1917, of delegates of the International Surgical Society from Belgium, France, Great Britain, Serbia and the United States of America, that:

1. The International Surgical Society be dissolved after the publication of the Volume of Transactions of the Meeting held at New York City, April 14th, 1917. Should any money remain after the publication of the volume, such money will be divided pro rata among members. Each member of the Austro-German group will receive his share; but the money belonging to members from other nations will be retained and applied to some object of scientific reparation in Belgium.

2. A new society will be created after the war on a similar basis, to be called the "Inter-Allied Surgical Society." Surgeons of neutral countries may also be elected members.

DECREASE IN BIRTH RATE IN HUNGARY.

The following statistics were read by the Karolyist deputy, Lodovico Hollo, to the Hungarian Chamber of Deputies, at the session of January 16, 1918.

"(1) Births.—Before the war 765,000 children a year were born in Hungary. In the first year of the war, 1914, the number of births was reduced by 18,000; in 1915 only 481,000 children were born—that is, 284,000 less than in time of peace. In 1916 the number of births was 333,000—that is, a reduction of 432,000. In 1917 the births amounted to 328,000—that is, the reduction was 438,000. Therefore our losses (in Hungary alone) behind the front reach the number of 1,172,866 individuals.

"(2) Deaths.—Whereas in time of peace infant mortality, for a period of seven years, was 34 per cent., in 1915 the proportion was increased to 48 per cent., and in 1916 to 50 per cent."

"These facts," said Hollo, "prove what sacrifices Hungary is making, to the prejudice of her own people, to continue the war."

The war is going to modify those material and mechanical features of education on which we have laid far too much stress in our modern and material world. It means that while men are learning to die and women are learning to suffer, that everybody is learning to serve; that everybody is learning to make the most of things and to go without things they had before; that something of a great mysterious beyond is creeping into our lives and is making itself felt for the ennobling and strengthening of all the virtues of humanity, for it is the call for the best that is in us and brings out the best that is in us. It brings us pleasure, storm, and sacrifice; it brings suffering and it is going to remain.—"Volta Review."

New Members

Barry, W. T., Santa Barbara.
Rosson, R. W., Weed.
Hornor, D. H., Dunsmuir.
Bernard, Lyde H., Calistoga.
Wetmore, Clyde T., Richmond.
Griswold, C. H., Modesto.
Conrad, D., Santa Barbara.
Potter, Nathaniel B., Santa Barbara.
Livingston, W. R., Ventura.
Leisenring, L. M., Placerville.
Smallwood, Walter C., Richmond.
Sperry, John A., San Francisco.
Bell, W. L., Richmond.

Parrett, O. S., National City.
Hicks, J. R., Delano.
Pomeroy, F. K., Fresno.
Stahl, Fred W., Los Angeles.
Cottle, C. C., Los Angeles.
Piness, George, Los Angeles.
Boyd, Geo. Thomas, Los Angeles.
Stone, Joseph Wm., Los Angeles.
Wolferman, A. Gertrude, Los Angeles.
Hammond, Nettie E., Los Angeles.
Riddle, Julia, Los Angeles.
Snyder, C. C., Los Angeles.
Coleman, Barney E., Los Angeles.
MacCloskey, Richard C., Los Angeles.
Bell, W. L., Richmond.
Frauer, Edgar A., San Diego.
Means, Samuel W., San Francisco.
Manson, Robert M., San Leandro.
Crawford, J. C., Orange.
Adams, W. C., Portola.
Flanders, Harriet Randall, San Francisco.
Magan, Percy T., Los Angeles.
Barclay, Harry A., Culver City.
Lacey, J. Mark, Los Angeles.
Jackson, Louis H., Los Angeles.
Roth, Geo. H., Los Angeles.
Graham, Chas. M., Inglewood.
Linhart, Laurence R., Los Angeles.
Holleran, Walter M., Los Angeles.
Moffatt, Howard L., Los Angeles.
Bayley, Walter, Los Angeles.
Bonthius, Andrew, Pasadena.
Truax, L. L., Los Angeles.
Atkinson, C. E., Banning.
Fanton, C. D., Riverside.
Hare, Jessie D., Fresno.
Sciaroni, Geo. H., Fresno.
Wallace, Carl T., Eureka.
Whittington, Wm. L., Eldridge.
Flora, G. A., Anderson.
Robinson, C. A., Ione.
Cochran, J. Sterling, Stockton.
Pearson, Chas. E., Turlock.

Resigned

Hare, C. B., San Jose.

Transferred

Wintermute, C. E., Saratoga, to Tulare County.

Deaths

Milliken, A., of Placerville, Cal., died Jan. 28, 1918, of bronchial pneumonia, age 84.

McAllister, W. F., died March 26, 1918; member of the George H. Thomas, Post No. 2, G. A. R.; native of Philadelphia; buried in National Cemetery, Presidio.

Krotoszyner, Martin, of San Francisco, was shot and killed by an insane patient April 20, 1918, in his offices. He was a leading specialist in genito-urinary diseases. Graduate from the University of Leipsic, Germany, 1887.

White, George Amos, of Sacramento, Cal., died March 3, 1918. He was a member of the State Society. Graduate of the Jefferson Medical College. Founder of the White Hospital in Sacramento.

Johnson, Walter S., 350 Post Street, San Francisco. Long Island Coll., New York, 1899. Licensed in California, 1904. Died in Letterman General Hospital, Presidio, San Francisco, April 26, 1918.